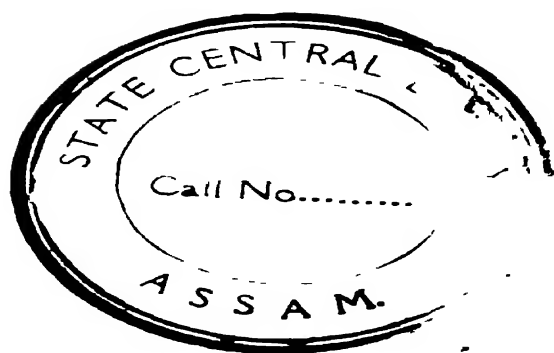


REFERENCE
Not to be
A GENERAL HISTORY
OF ARCHITECTURE





J. P. L.

Salisbury Cathedral from the Northwoldy

REFERENCE
Not to be lent out.
**A GENERAL HISTORY
OF ARCHITECTURE**

FROM THE EARLIEST CIVILIZATIONS
TO THE PRESENT DAY

BY
BRUCE ALLSOPP
B ARCH (LIVERPOOL), A R.I.B.A., A.M.T.P.I.
Lecturer in Architecture in the University of Durham



LONDON
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PITMAN HOUSE, PARKER STREET, KINGSWAY, LONDON, W.C.2
THE PITMAN PRESS, BATH
PITMAN HOUSE, ROUVRIE STREET, CARLTON, MELBOURNE
27 BECKETTS BUILDINGS, PRESIDENT STREET, JOHANNESBURG
ASSOCIATED COMPANIES
PITMAN MEDICAL PUBLISHING COMPANY, LTD.
45 NEW OXFORD STREET, LONDON, W.C.1
PITMAN PUBLISHING CORPORATION
2 WEST 45TH STREET, NEW YORK
SIR ISAAC PITMAN & SONS (CANADA), LTD.
(INCORPORATING THE COMMERCIAL TEXT BOOK COMPANY)
PITMAN HOUSE, 381-383 CHURCH STREET, TORONTO

PREFACE

ALTHOUGH the facts of architectural history have been amplified to some extent in recent years, fresh factual knowledge alone would hardly justify the writing of a new history of architecture; but in history the interpretation of facts is almost as important as the facts themselves. So long as architects designed in the classical or some other style they asked certain questions and the historians of architecture tried to give them the answers. Now we have a new conception of design and a new architecture is coming into being, as has happened several times before in the history of civilized man. We no longer ask the same questions of history and the interpretation should no longer be coloured by an out-of-date, eclectic approach to design. That is why I think it is worth while trying to write a new history of architecture.

When I started to set my ideas down on paper I soon realized that many ideas which had seemed good in the nineteenth century had, so to speak, been projected back into the past; that the whole of architectural history had acquired a Victorian tinge. The classification and subdivision of it, and much of the terminology were, I came to realize, based upon insecure foundations. I found that it was not going to be possible to start at the beginning and work steadily through to the present day. There would have to be some clearing of the ground first. I found the answer to the problem of how to plan these volumes in—of all unlikely places—the examination syllabus of the Royal Institute of British Architects. I saw that there was a fundamental wisdom in the established practice of requiring a student to study the whole in general before concentrating on the details of any one part. I should add that I am indebted to the R.I.B.A. Text-books Committee for their interest in the book and for putting me in touch with Dr. Hamilton (see “Acknowledgments”).

The first volume of this work is a general history. In it I have tried to prepare a firm foundation upon which to base the later volumes. I have had to devote a good deal of this volume to correcting views which I believe to be ill-founded, because I must assume that most readers will already know something of the history of architecture as expounded by men who believed that architecture is the application of styles of decoration to structure.

The history of architecture is one of the byways of historical study, but it is not unimportant. We judge a period in the past to a great extent by the level of its culture, by its literature, painting and architecture. It is not always realized how great an influence these things have had upon our opinions, and it is perhaps not too much to claim that the Victorian conception of art, and especially the idea of “great periods” and “decadence” in the arts, still colours, if it does not actually cloud, much historical thinking. This is especially true of peoples like the Minoans who are known to us mainly by what we have been able to excavate. This is another reason why a reassessment of the history

of architecture may be opportune, and possibly of some value to students of other and wider aspects of history.

In writing on any one aspect of history there is always the difficulty of deciding how much background to include. I have assumed that my readers will have some knowledge of history: to study architecture without it would be sheer futility; but there are important periods in the history of architecture which are outside the normal range of study in schools, and I have tended to concentrate on these, to give more space to the periods which are likely to be less well known. Even so, these sections have had to be very brief and I would venture to warn the less experienced reader that summarization can often make things appear more simple than they really are.

A general history of architecture in one volume is bound to be drawn to a very small scale. When an architect designs to a small scale, as he nearly always does in the beginning of a scheme, he thinks in terms of the essentials of architecture, the purpose of the building, how people will use it, how it is to be planned and the principles of its structure. This first volume is about the essentials of architecture, people, plans, structure and the significance of whole buildings. I hope to write more volumes which will amplify this one.

B. A.

ACKNOWLEDGMENTS

THE history of architecture has been built up slowly by the patient scholarship of many devoted students and I am doing no more than presenting it afresh. If there is a little original thought in this book it is as nothing to the vastness of my debt to other people.

I should like to take this opportunity of thanking those who have been so generous of their time and trouble in helping me. I am deeply indebted to Dr. Stanley B. Hamilton for his careful reading of the typescript and his valuable comments, to which I owe a number of corrections and improvements. My colleagues, Mr. F. Fielden and Mr. J. H. Napper, have both read the typescript and I am extremely grateful to them for their help on many points and for the stimulating discussions we have had. I also offer my grateful thanks to Mrs. Margaret Woodroffe who typed the book from my not very legible manuscript; to Mr. C. J. Duncan and his staff in the Department of Photography at King's College, Newcastle upon Tyne; to the Library Staff at King's College; to Mr. C. J. Palmes and his assistants at the R.I.B.A. Library; to Professor Dott. Pier Luigi Nervi; to the photographers listed below who have allowed me to reproduce their work; to Major and Mrs. Gordon Duff; to Mr. F. Jenkins for preparing the index; to Mr. John F. Douglas for his great help in planning the book and to him and other members of the staff of Sir Isaac Pitman & Sons, Ltd., for the great amount of patient and careful work they have devoted to the production of the book.

B. A.

LIST OF PHOTOGRAPHERS

Whose Names are Indicated by Initials

W.H.W.	W. H. Williamson, A.R.I.B.A.
F.F.	F. Fielden, A.R.I.B.A.
H.F.K.	H. F. Kersting, A.I.B.P., F.R.P.S.
C.J.D.	C. J. Duncan, M.A., F.R.P.S., F.R.M.S.
F.A.C.	F. Austin Child, F.R.I.B.A., A.M.T.P.I.
H.F.	Herbert Felton, F.R.P.S.
J.S.B.	J. S. Bonnington, B.Arch., A.R.I.B.A.

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TO
G. PHILIP BELL

“The historical fact . . . is always a process in which something is changing into something else. This element of process is the life of history.”

R. G. COLLINGWOOD

PART I: INTRODUCTORY

CHAPTER I

A VIEW OF HISTORY

THE history of architecture is like the story of an old garden. Once there was wild country which was cleared with much toil, cultivated and the soil improved so that it yielded good harvest; and a time came when land could be spared to grow trees and flowers and to be a pleasant place: so a garden was made. At first it was open to the sun. Then the trees and shrubs began to grow; the open field became a place of mystery and enchantment. The trees matured and the garden became shady and overcrowded so that one day a change had to be made. Plantations were thinned and the light was let in; but the best of the trees were spared to grow old and majestic, until at last they became infirm, and young ones were planted to replace them.

There were new gardeners, too, and new owners with fresh ideas, and fashions changed. So from time to time the garden was altered, not because it was wrong, but for the sake of variety. Once there was a formal parterre, a mosaic of flowers and box, and when that went there were wide lawns and a little temple to Venus with cypress trees around it. After that there was a ruin with weeping willows, a rocky pool filled with reeds and water-lilies. At last the house was demolished and a playground was made there; the paths were widened, the Temple of Venus became a pavilion for the bowling club, the collection of orchids was sold and the little grotto, encrusted with sea shells and bits of glass, was reft of its modest screen of bamboos and exposed to the sardonic eye of the strolling park-keeper; but it was still a garden, the same old garden changing with the times and being adapted to new ways of life. Looking back over its history you could imagine it in one period or another as you liked, but there was never a complete change. Always something of the past survived in the present, and always in the present the gardeners were thinking ahead: wallflowers in the autumn to flower in the spring, and young trees to be there when the old ones died. You could never say that one period was wholly itself and, where you saw decline and decay, you would see also, if you looked carefully, promise and opportunity for the future.

To most people who have written about the history of architecture there has seemed to be a long progression of styles leading up to the one in vogue in the writer's own time: the classical style in the eighteenth century and the "styles of architecture" since c. 1800. For those who, since the Renaissance, have looked to the classical tradition as the inspiration of all good design, the idea of *style* was fundamental and beyond question; but not only classical designers have been influenced by it. Many nineteenth-century architects thought they saw an arbitrary and irrelevant character in the classical rules of



1 1



2 2



3 3

PLATE I. THREE BUILDINGS ILLUSTRATE THE INFLUENCE OF A SCIENTIFICALLY
DESIGNED AND THE CASE FALLING—OPEN VIRGINIAN ARCHITECTURE

- a. North House, April, 1901.
- b. The house in June.
- c. South House in April.



1

27-28



29-30

PLATE II. VERMONTIAN ARCHITECTURE IN ENGLAND

1. Cottage at Thetford, Norfolk, England, 1810, by the architect.
2. House at Thetford, Norfolk, showing a complete reproduction of the original building, which is now a museum.



(Plat. 20, 1)



(Plat. 20, 2)



3

(Plat. 21, 1)

PLATE 2. YUCATECAN ARCHITECTURE AS OBSERVED IN THE YUCATÁN
HOTEL DE EVORA

Note the essentially horizontal lines of the design and compare with European half-timbered work. (See also Plate 2.)



PLATE 4



PLATE 4

PLATE 4. A TYPICAL JAPANESE

Japanese architecture is typical. Most of the buildings are made of wood and are built on stilts. The roofs are tiled and the walls are made of paper.

Most of the buildings are built on stilts. The roofs are tiled and the walls are made of paper. The buildings are built on stilts. The roofs are tiled and the walls are made of paper.

proportion and good taste, but they were themselves confused in their thinking about Gothic architecture by the classical idea of style which they accepted as being valid for *all* architecture.

It is important to realize that the idea of style, as it is known in Renaissance architecture, was unfamiliar to the architects of some other periods, notably the Middle Ages in Europe. To the Victorian architect, who believed that the ornament of any period was applicable to contemporary design,¹ the history of architecture appeared as a series of styles from Egyptian, Persian, Greek and Roman, to Louis XIV, Queen Anne and Empire. All these styles were comparable and all were, in greater or lesser degree, applicable to the problems of modern design as patterns, though controversy might rage about which were the more suitable. It did not matter that the so-called "Egyptian style" was culled from the history of a whole civilization which lasted for three thousand years or more, the "Greek style" from less than two centuries, and the "Queen Anne style" from a period of a few years in a single small country.

In recent years the Renaissance aesthetic has been much questioned and at least partly abandoned by a considerable proportion of architects. The practice of designing in one of a number of styles has gone out of favour, and architecture is conceived as being something quite different from what the Renaissance designers thought it was. Not only is the aesthetic of the art changing, the way in which we think about it, but also the relationship between architects and the society in which they work.

Ideas about history have changed, too, and we are inclined to distrust conceptions of history which impose a pattern upon it. Just as the orders of architecture may bedevil the design of a concrete building so that little progress can be made with the design of concrete unless they are discarded, so an "order" of history, a tight scheme of periods separate from each other, may conceal important truths and limit our thinking about the past. In a new history we must be prepared not only to consider the relatively small number of new facts which are known but also, without prejudice so far as is possible, to re-examine the old facts.

The old story of styles of building as prototypes for modern work has ceased to have much meaning, and we are concerned with history partly for its own sake, but mainly as a means to wisdom, to the better understanding of ourselves and our architecture, as a basis for sound judgment and criticism and, therefore, as an aid to design. This being so, we shall be inclined to regard the history of architecture, not as a series of short periods of climax during which the "styles" were in their most perfect form, but as a series of transitions; and we may well regard the long periods of experiment and change, such as the Hellenistic period, the early Middle Ages and the age of transition in which we ourselves live, as being quite as interesting as the short periods when the styles of the old history-books had, so to speak, crystallized. We may even find that these times of apparent stability were, beneath the surface, periods of ferment and change; for the seemingly ordered progress of the styles revealed in old history-books

¹ See Owen Jones, *The Grammar of Ornament*.

was achieved, not only by imposing Renaissance ideas on periods which they did not fit, but also by means of very careful selection and, occasionally, by the suppression of evidence. So this book is not a history of styles and climaxes, but of change. Our interest will be not only in results, but in the means by which they were achieved. This will enable us in some periods to consider important architecture which has been neglected because it was not thought to be typical of its period. An example of this will be the Gothic architecture of Georgian England.

A general history of architecture might be expected to cover the architecture of the whole world since the earliest civilizations, but, if it did, it would be extremely voluminous and diffuse. It is clearly necessary to take some well-defined road through the history of the world's building.

National boundaries are unstable and no modern country can claim an architectural history which is exclusively its own. The history of the architecture of the United States of America is not intelligible by itself: it must be studied at least as much in Europe as in America. English architecture owes a great deal to France and Italy; and even Italy cannot claim an architectural history which is its own.

We have rejected the old scheme of periods, and even a study by civilizations would have an inflexibility at the joints which would cause difficulty. For example, the time of the decline and fall of the Roman Empire was one of the most important periods of growth and change in the whole history of architecture. We must remember our analogy of the old garden with which this chapter began, and be on our guard against accepting the ideas implied in such phrases as "decline and fall" as being necessarily true. The decline and fall of the Roman Empire coincided with the rise of Christianity.

Let us consider for a moment what we are doing in studying the history of architecture. We are standing here and now, and looking back into the past. We have a definite point of view. We will make this the starting point of our plan of study. From our point of view all history comes down to us. There are other points of view from which the history of architecture would look rather different but, owing to the world-wide spread of western culture, not nearly so different as it would have done a hundred years ago.

Our point of view, then, is in the western, English-speaking world, and those things are relevant which influenced the tradition to which we are heirs. Our history will be like a family tree showing our own descent, but, for the sake of clarity, showing only the main line from the beginning of architecture down to us, and leaving out the cousins, unless by marriage they are linked again to the main line.

The scheme of our history may be expressed like this—

Ourselves—here and now, moving slowly into the future.

Looking back to—the nineteenth century and the Industrial Revolution in Europe and America.

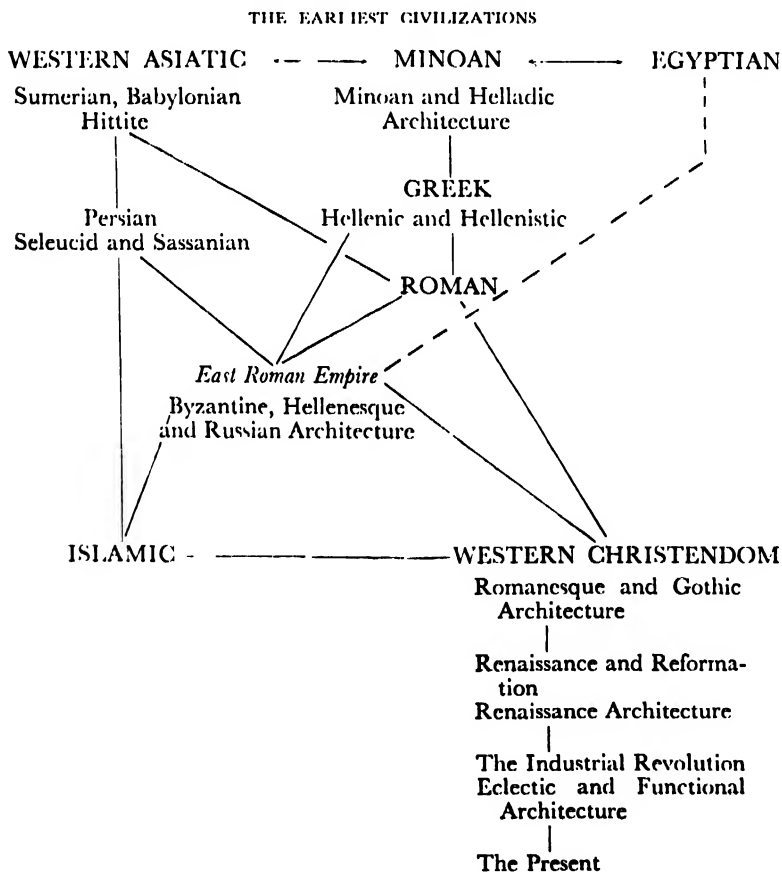
Beyond that—the Europe of the Renaissance and the Reformation (and its extension to America) from its origins in Italy and northern Europe.

Behind that—medieval Europe right back to the end of the Roman Empire in the West and the foundation of Christendom and Islam.

Beyond that—the whole of classical civilization, Greek and Roman.

And far away in the distance—the earliest civilizations in Egypt, Mesopotamia and the Aegean.

We are accustomed, however, to think of history the other way round, early first and later afterwards; cause before effect. So we shall start at the beginning and come back to the present and the route will be as shown below. On this diagram we must regard the names rather like the names of stations on a journey and not as self-contained periods—



Having settled the general direction of our history we must consider an idea that is familiar to all architects, the idea of *scale*. Our history cannot be drawn to a uniform scale throughout. We know less about a thousand years of Egyptian or Minoan architecture than we do about

any ten years in the nineteenth century in Britain or America. If we did use the same scale throughout, the Renaissance would get one-tenth of the space allotted to Ancient Egypt. The scale of this history must increase as we get nearer to the present. We shall literally see history in perspective, big and detailed in the foreground, small in the remote past where we shall see relatively little.

The availability of data must also condition our history. It is as well to realize that the whole extant remains of Minoan architecture are less than the palace at Versailles, and all the buildings we know in any considerable detail from Greece in the fifth century B.C. would not amount to a small modern town. The buildings which have survived are not always the best there were. The survival of works of art is very much a matter of chance. From some periods only specialized types of building have survived and, despite all the laborious and scientific techniques of modern archaeology, we cannot be certain that what was lost was exactly like what survived. We cannot be certain that our conception of the whole picture is correct, though a very great deal has been done in the last fifty years to amend earlier misconceptions. Even medieval architecture in France or England, which is represented by a few almost complete towns and a great number of important and well-preserved buildings, is not easy to visualize as a whole because, after five hundred or more years, little that was bad and shoddy has survived. The shacks and shanties of the Middle Ages are gone long since and we are left with a possibly partly false impression of quality and beauty in the medieval city. In the course of this history we must try to allow for this sort of thing.

Archaeology is not quite the same as the history of ancient architecture and some errors have arisen from confusing the two. Archaeologists provide data, but not always the correct interpretation of it in terms of architecture. For example, to some archaeologists the evolution of the Ionic volute is more important than the design of the Erechtheum which, as a work of art, was something of a miracle. This is not a criticism of archaeologists as such. It is not their business as archaeologists to admire the Erechtheum, but to establish the facts. The archaeological approach has definite limitations and can be misleading because it depends upon the chance of survival, so that what has managed to last seems more important than what was destroyed, and this may not be true. It is a danger of which good archaeologists are well aware.

The archaeological attitude of mind has been applied to more recent works of art which are not normally the province of archaeologists and in recent years there has been a great accretion of erudite scholarship around medieval and Renaissance works of art, and even round the work of men only recently dead. There is a fairly large literature concerned, not so much with works of art as such, as with problems of attribution. Interesting though these may be in themselves, they are of minor importance in a general history. They will be dealt with to some extent in the later volumes, but there is a danger, in going too far with the detailed classification and attribution of works of art, that their real nature may be forgotten. It is also important to remember that the authorship of works of art has seemed much more

important since the Renaissance than it did in the Middle Ages or in Imperial Rome. We do not know the names of the architects of very many fine buildings. Even some of the best documented attributions are not always very convincing, because we know that the conditions of architectural practice in the past, as in the present, did not exclude the possibility of architects' delegating their design work to assistants and claiming the credit for themselves. There are traces of this form of dishonesty throughout the history of the arts. We must also bear in mind the extent to which at various times partnerships and other forms of association have been used to supply the many kinds of ability required of an architect in practice. The head of the firm is not by any means always the designer, any more than a modern official architect is the designer of everything built under his name.

The correct attribution of works of art to their authors, especially in architecture, is a fascinating and difficult business. It must be kept in proportion and we must be constantly on our guard against an attitude of mind imported from the world of the dealers in antiques and of collectors with an eye on the money-value of works of art. A proportion of modern art scholarship is tainted in this way. Every work of art is, by its nature as a work of art, in a sense unique, and its value is not properly to be measured in terms of money or rarity, nor by assigning it to a famous name. We must try to judge buildings historically and on their merits, not according to the fame of their architects. This may lead us to make some reassessments. In the history of the art of architecture we must be aware from the outset of two distinct kinds of architecture, and we must exclude certain kinds of building which are not properly to be called architecture.

Architecture did not begin when a caveman hung a few skins at the mouth of his dwelling to make it more comfortable, nor when the nomad stretched hides upon a simple frame to make a tent. It did not begin when the first rude huts were constructed of sticks and mud, of branches and thatch, or piled-up stones roofed with turf. These things were no more architecture than the nests of swallows or the dams which beavers make. It did not begin when man first used flat slabs of stone as altars or raised dolmens; but it *did* begin when man first identified *himself* with what he built and took a pride in it and did a little more than stark necessity demanded—when he began to care for the appearance of what he built. So we shall exclude from the history of architecture those buildings which are buildings and nothing more. There must be a distinction between building and architecture. Architecture is an art and as such it is in some way expressive of the man or men who build.

The two kinds of architecture which we shall notice will be called *vernacular* and *designed* architecture. Vernacular means native, indigenous and characteristic of a locality. Vernacular architecture partakes of the character of the folk-songs in which we all sing "Hey nonny nonny" or "Here we go round the mulberry bush" because that is *the way to do it* and anyone who sings differently is an ignoramus, or an idiot, or a dangerous character.

Designed architecture is artificial, cultivated, not of spontaneous growth, conceived, contrived, planned, purposed and intended.

Designed architecture is the result of a conscious effort to create something new. Vernacular architecture does, of course, contain an element of design, but it conforms closely to a traditional way of design. It is a rearrangement rather than a new creation, and there is the minimum of originality. Designed architecture contains an element of tradition but each design is fresh. It requires much more of the architect than vernacular architecture. There are many buildings which would be hard to classify as vernacular or designed, and it will scarcely be worth while trying to distinguish in such doubtful cases. The point of making the distinction is not as a means of classifying buildings, but to make clear two processes which are at work throughout architectural history.

Vernacular architecture is characteristic of rural communities which cannot support architects as such. The amount of building is small, the intellectual climate is conservative and dogmatic and the arts are "folk" arts, changing very little, if at all, through the centuries. Vernacular architecture is usually perfectly adapted to local conditions, climate, needs and materials and to the very character of the people. Its growth is like the growth of a plant which puts forth more and more leaves and flowers of the same kind.

Designed architecture is characteristic of urban communities on a fairly large scale. In these there is sufficient building for it to be possible to separate the work of designing from the work of building. It is possible for architects as such to exist. The architect devoting his whole life to design brings to its special problems a concentrated interest, an enthusiasm for design—his own job—and, in rare cases, an originality of mind, which make possible a changing and developing architecture. The history of designed architecture is like the evolution of species. We see how, by mutations, one comes from another and how by cultivation the wild rose begets the lovely bloom of the modern garden.

Some urban communities are able to sustain a vigorous intellectual life and interest in the arts which must affect some, at least, of the architects. An urban community may produce that margin of wealth which allows it as a community, or some of its members as individuals, to take an interest in fashion and innovations. This margin, so far as we can judge from the history of architecture, seems to be essential to the *development* of the arts, though not to their survival in a vernacular form.

The so-called styles of architecture were all produced by architects living in urban communities, but it is interesting to note the small number of the cities which have contributed much to the arts and the large number which apparently might have done but never did. It is also interesting to notice that most of the cities which have been important in the history of the arts have only been so for a short time or intermittently. We must bear this in mind throughout our history.

Vernacular architecture may be influenced by designed architecture. For example, the architecture of French villages in the eighteenth century was much affected by the work of the Renaissance architects at court. In England the vernacular of the Yorkshire dales and the Cotswolds was profoundly influenced by the work of the great Tudor designers; but the vernacular is not something which comes into

being and remains what it is. It has its own ways of change which have produced sharply differentiated vernaculars all over the world. The active force in architectural history is not only design. Evolution of the vernacular is also important, and we must be aware of both forces at work, when sometimes one and sometimes the other seems to be dominant.

Construction is the medium in which architects work. It is for them what paint is for the painters of pictures. Architects do not undertake construction as an end in itself but what they can do as designers is markedly affected by their ability to construct. Changes in constructional methods are rare in the history of architecture but they are associated with important changes in design. We must give due attention to the development of structural technique and try to see what was the true relationship between structure and design. Sir Gilbert Scott in the nineteenth century could say that architecture was the decoration of structure, which is a very different point of view from the one I have given above. The relationship between structure, decoration and design has not always been the same: their relative importance has varied. To understand something of the history of architecture we must try to learn how people thought about these things and how ideas changed.

Finally, before we go on to the next chapter, we must return to the subject of style. There is no doubt that the architecture (like the other arts) of particular places, times and peoples has recognizable characteristics. In a few cases, as, for example, Italy in c. A.D. 1500, or England in 1830, there were deliberate attempts to give the architecture a particular character—in the first case Roman, and the second case Greek—in other words to design in the “Roman style” or in the “Greek style.” We shall see that neither the Greeks nor the Romans thought of their own architecture in this way and it is significant that Italian Renaissance “Roman” is recognizably Italian Renaissance and English “Greek Revival” is characteristically English!

Architecture as an art does in a very real way express the feelings and the character of the people who make it. Communities of men and women seem to develop a certain amount of feeling and thinking in common, and it is this community of feeling which is expressed in works of art as the feeling of the individual artist, *as well as* feelings which are his own, so that a common character pervades most of the works produced in the community. In time this character may come to be recognized and self-consciously cultivated. It is then on the way to losing its artistic vitality and becoming a style.

It would seem that architecture is not something to be considered by itself. In tracing its history we shall find many changes which come about through the nature of architecture itself, but it is also influenced by other things. Egyptian architecture was not the result only of materials and methods of construction nor of the kind of “programme” which Egyptian society presented to its architects. It might be said that it was an expression of the character of Egyptian society; but it is not quite so easy as that. The revolution attempted by Ikhnaton seems to have been slightly reflected in the arts. Had he succeeded in breaking the power of the priests of Ammon and giving Egypt a new religion,

Egyptian art might have changed as much as English Renaissance differed from English Gothic architecture. It is not the *whole* character of a people which is reflected in its architecture but what we might call the dominant character of the time. It can alter quickly with a shift of power, a change of fortune, or with new ideas. So we have in England in 1740 the solid plagiarism of the Palladians and twenty years later the delicate vivacity of the rococo. To understand these things we must look outside the narrow boundaries of purely architectural history; but architecture is the subject of this book and we must assume that the reader has equipped himself with some knowledge of history, of which the history of architecture is only a small but fascinating part.

PART II: THE ARCHITECTURE OF THE EARLIEST CIVILIZATIONS

CHAPTER II

EGYPTIAN AND MESOPOTAMIAN ARCHITECTURE

EGYPTIAN ARCHITECTURE

It seems probable that the first civilizations came into being about seven thousand years ago, and there have been men upon the earth for perhaps 300,000 years. It has been suggested that the stresses set up by the change of climate at the end of the Ice Age impelled man to the "dynamic act" which gave birth to civilization. The grasslands of North Africa and the Near East dried up and the men who, in desperation, tackled and tamed the fearful swampy jungles which must then have existed in the valleys of the Nile and the Tigris and Euphrates founded the civilizations of Egypt and Sumeria. Other men and women, more daring even than these, took to the sea in frail boats and rafts to found the maritime power of Minoan Crete. This is perhaps the most convincing of many theories which have been advanced to account for the almost sudden appearance of civilizations after thousands of years of primitive savagery.

In studying the architecture of these three civilizations we find two very big difficulties. The first is the enormous length of time, and the second is the scarcity of information. It is difficult to push the true history of architecture back so far without trespassing upon ground which belongs to archaeology. There is value in a general study of history but generalized archaeology is usually bad. Archaeology is a science which depends upon the most scrupulous accuracy of detail, and there are no short cuts. For detailed knowledge of very ancient building the student must be referred to the work of the archaeologists. Our purpose here will be to give in bare outline some idea of the *architectural* achievement of the ancient societies so far as it is known. It was an important achievement because in these three civilizations the first architecture came into being and the basic problems of building and design were solved. Foundations, walls, roofs, pillars and beams were developed from the primitive scale of huts to the scale of major architectural conceptions; the arch of voussoirs was invented, and building passed from the merely utilitarian stage to become expressive of man's ideas and emotions, so that, looking at the architecture of the ancient world, we can learn much about the character of the people who made it.

We know far more about the architecture of ancient Egypt than we do about the architecture of Crete or Iraq. This is due to the fine quality of the building stones which the Egyptians used, to the dry climate, and to their desire to erect monuments which would endure

for ever. The outstanding examples of this desire are to be seen in the Pyramids of the Third to Sixth Dynasties (*c.* 2815–2294 B.C.) in the vicinity of Memphis. The supreme importance of permanence is evident in most of the Egyptian buildings that we know, but they are mainly tombs, monuments and temples. There was a different and more ephemeral kind of Egyptian architecture which we know partly from actual remains, partly from pictures and partly by inference.

The kingdoms of Upper and Lower Egypt were united by the legendary first Pharaoh, "Menes" (*c.* 3188 B.C.), and he built Memphis as his capital. By this time civilization must have been far advanced and much of the country brought under cultivation. According to tradition, Menes diverted the Nile from its original course and the Pyramids were built on the reclaimed land. In the early dynasties it seems that the immense energies which had made a habitable country of Egypt were turned to major architectural works and vast gangs of slave-labour built the Pyramids. The nature of Egyptian society and the character of its arts were settled in the early dynasties (First to Fourth) and after a period of troubles (*c.* 2424–2070 B.C.), possibly to some extent a result of the fantastic egotism of the Pyramid-builders, the Middle Kingdom was established under the Thirteenth and Fourteenth Dynasties (*c.* 2132–1777 B.C.). With the establishment of this new state progress in the arts almost ceased. The achievements of the past were maintained: that was all. The Middle Kingdom collapsed under pressure from foreign invaders (*c.* 1777–1573 B.C.), but the old order was reinstated in the New Kingdom (Eighteenth to Twentieth Dynasties, *c.* 1573–1090 B.C.). Egyptian civilization presents the astonishing picture of a society which went all the way from primitive life to a high level of civilization by the middle of the third millennium B.C., and then lost its creative power but retained its status for another 2,500 years.

In architecture there were variations in detail and minor changes of fashion, but the character of Egyptian design throughout three thousand years is remarkably uniform. There was a general tendency towards greater fineness of finish under the later dynasties.

Egyptian construction is extremely simple and crude. The need for enclosing large rooms was not great because of the climate, and the problem of roofing with large spans seems never to have been attempted. Shade was important, and vast columnar halls, loggias and cloisters are characteristic. The arch used in Mesopotamia must have been known from early times in Egypt but its structural possibilities were not exploited.

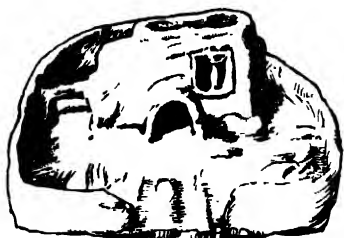
Planning was not very imaginative and designers seem to have been obsessed with the idea of a main axis—the avenue, the processional way—flanked by monuments and pylons. The origin of architectural detail seems traceable to the forms of timber-, mud- and reed-construction evolved in the pre-dynastic era. Familiar animals and plants figure largely in highly conventionalized forms in the decoration. Sculpture in the round was important and the incised figures of gods and legendary creatures, as well as pictures of events and hieroglyphic inscriptions, were much used on walls and columns with little regard for the architectural forms.



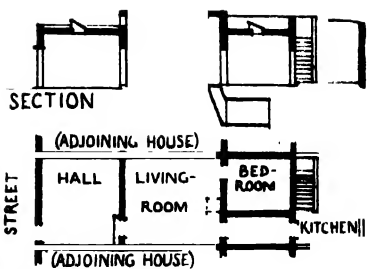
PLATE 5 (*above*). DOMESTIC INTERIOR IN EGYPT. c. 1400 B.C.

PLATE 6 (*facing*). EGYPTIAN HOUSES

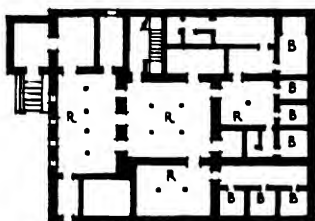
1. Clay model of cottage with arched door, c. 2000 B.C.
(*British Museum*)
2. Cottage type near Luxor, c. 1500 B.C.
3. Villa type at Akhetaton, Amarna, c. 1460 B.C.
(*T.P. Review and Egypt Exploration Society*)
4. Town house at Thebes.
(*Conjecture based on wall paintings*)
5. Wall paintings at Thebes showing domed granaries presumably built of brick.
(*After Wilkinson*)
6. Plan of villa and garden temple.
(*From painting*)
7. Thebes, the house of Neb-Amun.
(*Tomb painting, after Davis*)
8. Model of loggia of house.
(*Metropolitan Museum*)



1.

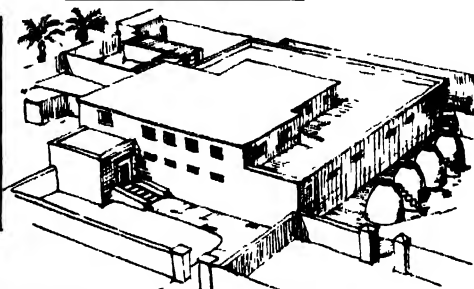


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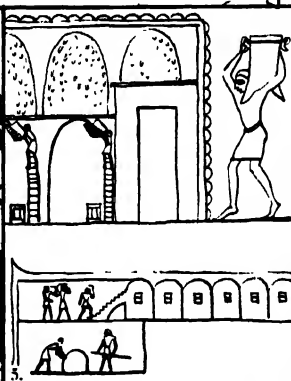


R. RECEPTION ROOM
B. BEDROOM

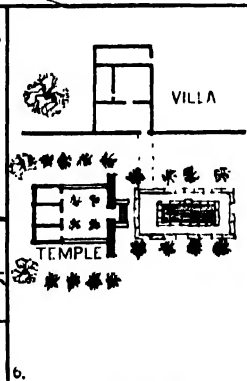
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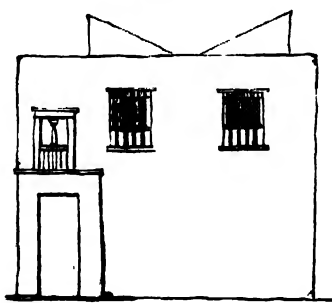
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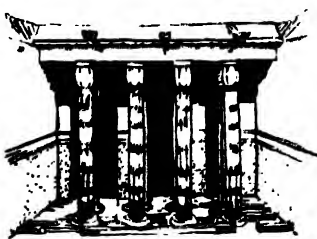
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6.



7.



8.



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5



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7



8

Figure 2. Egyptian Architecture

1. Model showing typical arrangement of an Egyptian temple—the temple of Khonsu, near Karnak.
2. The Great Pyramid of Giza, Giza, Egypt.
3. The Great Pyramid of Giza, Giza, Egypt.
4. The Great Pyramid of Giza, Giza, Egypt.
5. The Great Pyramid of Giza, Giza, Egypt.
6. The Great Pyramid of Giza, Giza, Egypt.
7. The Great Pyramid of Giza, Giza, Egypt.
8. The Great Pyramid of Giza, Giza, Egypt.



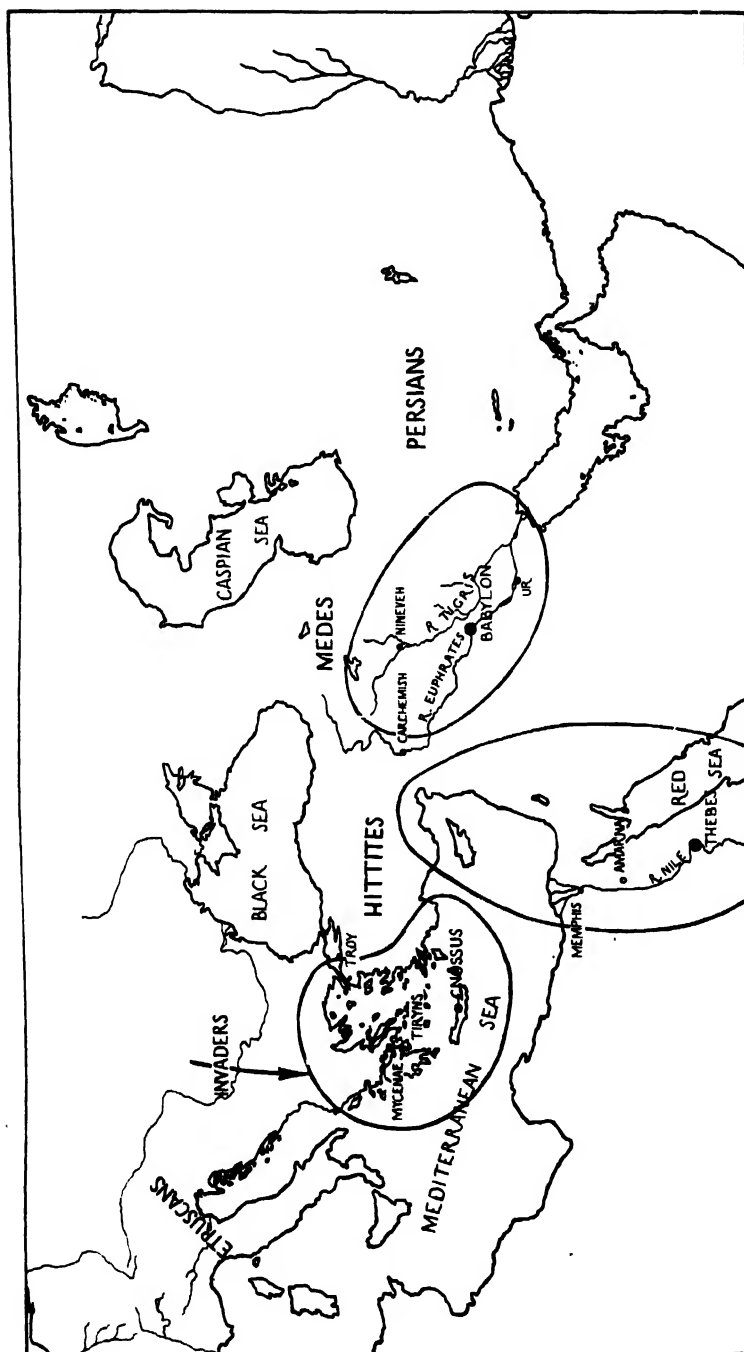
Figure 10. 11. 1940s



Figure 10. 12. 1940s

PLAN 2. SURVEY FOR THE TEMPLE, COMPLETION

1. Temple in the foreground, photograph, 1940s.
2. Columns in the temple in the foreground, photograph, 1940s.



MAP I. THE NUCLEI OF WESTERN ARCHITECTURE—THE AEGEAN, EGYPT, MESOPOTAMIA

Religious architecture, including tombs, was heavily monumental in character and vast in scale, the product of immense labour and little intelligence.

Domestic buildings for a very large part of the population were extremely squalid but there were villas and palaces on a luxurious scale. The decoration of these, the paintings, sculpture, fabrics and furniture, were very much stylized. It is impossible not to admire many of them as individual pieces but their sameness, the endless skilful repetitions of identical conceptions over such a long period, is witness to an intellectual and artistic sterility which it is appalling to contemplate and which may well be contrasted with the infinite variety and vigour of European art during the last fifteen hundred years. It is arguable that most of at least the later Egyptian work should not be regarded as art at all but as good craftsmanship. It seems that for two thousand years designers continued to use the lotus-flower as a motive; but one wonders whether anyone looked afresh at a real lotus-flower after c. 2000 B.C., when the conventions had been settled and the art of a great civilized community had acquired, at best, the character of a folk art.

The level of material comfort achieved in ancient Egypt for a fairly large proportion of its people was relatively high—indeed the flesh-pots of Egypt were famous—but, for reasons which I cannot discuss within the scope of this book, Egyptian society lost the vital power to change itself. So strong were the bonds with which it fettered itself that even the Pharaoh, Ikhnaton, could not break them, and he and his attempted revolution succumbed to the immense powers of the established priesthood, of conservatism and inertia.

Egyptian civilization had no offspring. It became, in Toynbee's phrase, "a kind of social concrete which took two millenniums to weather away."¹ Its influence upon the arts of other and later peoples has been very small.²

MESOPOTAMIAN ARCHITECTURE

We are concerned here with the remains of those societies which became powerful in Mesopotamia and the adjoining mountainous country up to the establishment of the Achaemenian Empire of the Persians, which will be considered later with classical architecture. The history of this region is exceedingly complicated and, in some periods, obscure. By means of great works of engineering and irrigation undertaken by the Sumerians before 3500 B.C., the land was made capable of supporting large populations and a succession of great cities arose, among them Nippur, Lagash, Ur and Babylon. These cities, depending for their wealth upon laborious agricultural toil, were continuously menaced by the adventurous peoples in the surrounding hills. The population of the plain, in fact, became the prey of alien rulers, some good and some very bad. The most important of these, for the purposes of an architectural history, were the Hittites, who built up a powerful state in Anatolia and sacked Babylon (c. 1750 B.C.), and the Assyrians of Northern Mesopotamia. The Hittites, fascinating though

¹ Arnold Toynbee, *A Study of History*, Vol. I, Oxford, 1934.

² There is another view held by the "diffusionist school." See W. J. Perry, *The Growth of Civilization*, London, 1924.



Photo Post Library

- PLATE 9. LIVERPOOL, TENNESSEE
1. Colonnade to the Temple of Neptune, 1814-1815. (Photograph by the author, 1914.)
 2. The Obelisk, 1814, at the Temple of Neptune in Liverpool, Tennessee. (Photograph by the author, 1914.)



Photo Post Library



PLATE 10. AMERICAN MUSEUM

- a. General view from the north showing domed houses, near side of the river.
- b. The east of the city is a river.

their obscure history is in itself, contributed little to architecture. They were not that kind of people; but they may have been one of the means whereby Asiatic methods of construction spread westwards to Etruria and Rome. The Assyrians, though they contributed little to the development of design, were the authors of the buildings which have been best preserved.

In the valley of the rivers abundant clay was available and the most convenient way of building was with bricks. Timber was scarce and the problem of spanning openings was solved in very early times by the use of the arch. This development of the arch and vault as a substitute for the lintel was very important. It came about *of necessity*.

Western Asiatic construction can be thought of as the exploitation of mud as a building-material. This was, for convenience, dried into cakes—sun-dried bricks. These were then piled up into walls and arches and later into domes; but the earliest buildings before the invention of the mass-produced unit, the brick, were of mud and wattle. The forms of mud-construction persist in brickwork. From it in later times came the domes of Byzantine and Islamic architecture and some of the ideas which dominated Gothic architecture. In the meanest settlements from Morocco to India the elements of Western Asiatic construction are still practised. A kindred structural idea was thought of by the Eskimos in the snow igloo, but could not be developed.

With mud as a building-material it was natural that in the great and wealthy cities attention should be given to improving the appearance of wall-surfaces. Men learned to bake the local clay in kilns to make tiles, and methods of glazing with colour were developed. Thin slabs of stone were brought from a distance and used for wall-linings. Mud-brick walls tend to be thick for stability, and thick walls with few windows are desirable in so hot a climate. Intricate moulded shapes are not easy to build in mud brick, nor are they suitable for construction by slave-labour, so the decorator was generally presented with large, plain, unmoulded surfaces. In developing a technique for dealing with these he laid the foundations of Byzantine and Islamic decoration and influenced Roman practice.

Of the architectural character of buildings earlier than those of the Assyrian period (after 1000 B.C.), we know little, though immense mounds of remains exist. Planning of palaces was spacious and grand, and it is probable that, as in smaller houses, more care was taken with the design of internal courtyards than with the exterior appearance. The most curious buildings were the ziggurats.¹ They were the product of immense toil, but they are of slight importance as architecture.

We are entitled to suspect that both here and in the Nile valley, after the stupendous effort of taming the rivers, the swamp and some of the desert, the reward was snatched by invaders. These formed a ruling class which had at its disposal a vast amount of labour which needed employment and was excluded from the precious fertile land—hence the Pyramids and the ziggurats. It is one of the unpalatable facts of the history of architecture that the so-called “great periods” of opportunity for architects to build on a monumental scale have seldom been anything but deplorable from a humanitarian point of view.

¹ Ziggurats are immense pyramidal temples with spiral ramps leading to the top.

CHAPTER III

MINOAN AND HELLADIC ARCHITECTURE

A CIVILIZATION emerged in the Aegean islands before 3000 B.C., and it is known as The Thalassocracy (sea-power) of Minos. Its metropolis was Cnossus in Crete where the most important remains have been discovered. Its influence extended to Greece, to the islands of the Aegean Sea and the coasts of Asia Minor. About the early architecture of this civilization we know very little, but its later phases are fairly well known to us through the imaginative and exciting work of archaeologists, notably in Crete, in Greece at Mycenae and Tiryns, and at Troy. There has been some confusion between this architecture and the early stages in the development of Hellenic (classical) architecture. In fact the Minoan civilization collapsed in the period after the sack of Cnossus and was extinct by c. 1100 B.C. It was at least three centuries before the emerging Hellenic civilization began to produce an artistic culture of its own. In these centuries there were invasions from the north as well as civil wars, and the people who created classical architecture were at least partly of different race from the Minoans. (See Part III.)

It seems that the Minoans of Crete, by means of their naval power, maintained law and order and kept the seas open for trade. It is probable that their rule was resented, particularly in the outlying parts of their empire, and a hint of the relationship between Crete and Athens, for example, is given in the legendary tale of Theseus and the Minotaur. Cnossus was sacked and destroyed c. 1400 B.C., much of the booty being taken to Mycenae, where it has been found. The fall of Cnossus and the end of its naval power created anarchic conditions in the Aegean. Trade must have been brought almost to an end by piracy and wars between the component cities of the old empire. These culminated in the deadly struggle of the Trojan war, the story of which is told in the *Iliad*. Homer's *Odyssey* gives some idea of the appalling difficulty of navigation after the end of Minoan power, glimpses of a few communities in which old standards of civilization were still upheld, and of others which had become barbarous pirate strongholds or, like Circe's island, retreats for luxurious vice. The darkness of barbarism fell upon the Aegean Sea and all the islands, on Greece and on the coasts of Asia Minor.

The name Minoan is usually given to the architecture of Crete, and Helladic to that of the mainland which resembles it; but there are some important differences between them, owing to a colder climate on the mainland, and to the need for defensible strongholds in dangerous country.

Of all the architecture of the earliest civilizations the Minoan is as *architecture* the most interesting. The planning, both of small houses and of the great palaces, was intelligent and imaginative. The scale was intimate, human and practical, in contrast with the morbid monumentality of the Egyptian temples. Construction was clever and

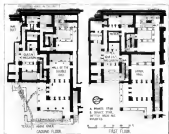


PLATE 11. THE PALACE OF CANNON

1. The Queen's Magazine.
 2. From the staircase passage. The upper hall is the library below the level of the main courtyard, in which the great staircase leads up.
- Drawn by permission, after drawings in "The Palace of Cannon" by Sir Arthur Conan Doyle.



1. 2



1. 3

Picture 15. The Palace at Larnax

The great entrance looking up through the upper apartments to the great central courtyard (partly restored).



PLATE 15. THE WEST SECTION OF THE WEST SECTION OF THE PALACE AT CAMAC.

(Based on preliminary report by the author, *Florida State and ST. 10, 1910*, in *The Palace of the Sun*, by the author, 1910.)



PLATE 19. CHIMNEYS, KILNS AND TOWERS

The following examples are known from before 1000 A.D. in the Islamic sphere of influence, for example, in Syria, Iran, India and Central Asia. The main development was during the twelfth century A.D.

1. Cross-section of chimney, probably a 12th cent.
2. Section of a tower, 12th cent. The tower, which is of cylindrical stone construction, is built according to traditional methods used in Mesopotamia. The tower shows the form of the conical structure.
3. Plan and section of the same.
4. Section of a tower, 12th cent.
5. Section of a tower, 12th cent. showing another view.



PLATE 15. TEMPLE, GROUND

a. As sketched on the edge of the Mooser world, showing Mooser planning modified for the actual site situation.

b. Main entrance.

c. Portico.

d. Outer Mooser's Hall.

e. Ballroom.

f. Private court.

g. Private Hall or Queen's Mooser's.

Note the entrance of the private Mooser's quarters from the great reception hall.

h. The Outer Mooser's at Teotihuacan here looked according to the plan.

PLATE 16. SOME STRUCTURAL PRINCIPLES KNOWN
BEFORE 1000 B.C.

1. Suspension—posts, ropes and pegs (the tent)—not developed fully until c. A.D. 1900, when steel chains and ropes became available.

2. Post and lintel.

A. In stone.

B. In timber.

This was the basis of Egyptian and Greek design. After that, very little development took place until modern times when steel and reinforced concrete greatly increased its potentialities. Pre-stressing makes even greater spans possible.

3. The round arch—a hole knocked in a wall or a passage cut in rock or firm soil. It occurs naturally in caves.

4. The arch of voussoirs—wedge-shaped stones which lock together. Stability depends upon lateral thrust being resisted by abutments.

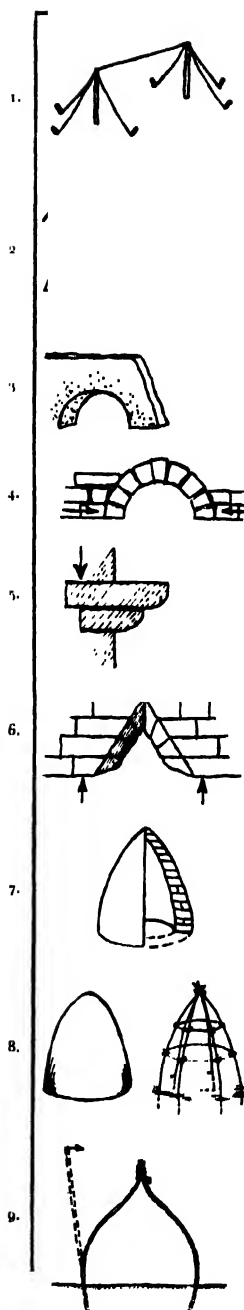
5. The corbel or cantilever—only limited projections possible in stone and timber. Steel reinforced concrete and methods of building up trusses have greatly increased possibilities in modern times.

6. Corbels used to form a vault which exerts only vertical pressure—no lateral thrust.

7. Corbels in horizontal rings form a corbelled dome which exerts no lateral thrust. This principle was developed mainly in western Asia, and in connexion with the arch principle became the basis of Islamic architecture.

8. Rings of mud or concrete can be used in the same way, either alone or on a framework of sticks; or a framework can be covered with reeds, skins, etc., and then coated with mud. These methods were used mainly in vernacular architecture.

9. Where cane was available, frames of this type were developed. The form was imitated in stone in India and elsewhere and corbelled domes of this shape were constructed.



complicated, fully exploiting the possibilities of load-bearing walls, posts and lintels. Timber was extensively used in conjunction with stone and rubble-walling for beams and pillars, and there was a tendency to imitate timber forms in stone, the most interesting example of this being stone columns like the timber columns which taper to the base. The form of the column was a stylistic feature, but there is no evidence that it was an "order" having fixed proportions. Decoration was highly conventionalized but architectural design in planning and building seems to have been remarkably free from the limitations of a style. One reason for this may be that the most important Minoan architecture was domestic and secular, not religious.¹ The idea of monumentality does not seem to have been attractive to the Minoans, although they must have known it from Egypt. Indeed, on the contrary, they seem to have delighted in the small and exquisite.

Minoan buildings were carefully planned for the climate, with deep shaded light wells and the maximum of cool ventilation. Water-supply and sanitation were almost up to modern British and American standards, and bathrooms were very pleasingly designed.

The external appearance of Minoan buildings is uncertain but it seems to have been simple and of similar character to most later architecture in the eastern Mediterranean area—simple wall-surfaces pierced with small windows where necessary and with some bright coloured bands, architraves and friezes in paint, tiles or marble. Simple cornices seem to have been used at Cnossus, but we do not know to what extent.

The impression we get from the remains of their architecture is that the Minoans of the second millennium B.C. were a gay, intelligent and sophisticated people. One can scarcely regret the passing of the Sumerian, Babylonian, Hittite and Egyptian civilizations, but, if their architecture is any indication of the character of the Minoans, the sack of Cnossus was one of the great tragedies in the history of mankind.

Up to c. 1400 B.C., mainland architecture, though it had its own history of development from neolithic times, was evidently strongly influenced by Minoan practice. The most interesting among many examples are the citadels of Tiryns and Mycenae. These show a high degree of intelligence in the planning of both the living-quarters and the fortifications. An interesting feature of this Helladic architecture is the use of enormous stones. The floor of a bathroom at Tiryns consisted of one block of limestone weighing about twenty tons with a raised edge and a gentle tilt to a drain in one corner. Upon this were placed baths of terra-cotta. Very large stones were used in the fortifications.

At Mycenae there are some tombs which rank as major works of architecture. They have picturesque names from Homer which are misleading. The finest of them, the so-called Treasury of Atreus, was built c. 1350 B.C. The lintel in this subterranean building is said to weigh over a hundred tons.² The vaults are constructed of overlapping

¹ The Minoans apparently did not build great temples, but Minos, if not, like Pharaoh in Egypt, a god himself, was at least a priest-king, and life at court was permeated with religious observances.

² See D. S. Robertson, *A Handbook of Greek and Roman Architecture*, p. 33. Second Edition, Revised, Cambridge, 1945.

horizontal courses in rings—a method still used in the Trulli of Apulia and developed in the great domes of Sassanian and Islamic architecture. They are not arched vaults and could be constructed without centering. The relieving triangle over the lintel (seen also in the lion gate at Mycenae) may possibly be an accidental feature. If the designers really did know what they were doing, they had grasped a principle which even the Romans did not appreciate; for the Romans would have used an unnecessary relieving arch.

Recent excavation in Greece and the islands and the decipherment of the Minoan linear script B¹ have built up a considerable body of evidence for the belief that the centre of the Minoan-Helladic culture may have shifted from Crete to the mainland of Greece earlier than has hitherto been supposed.

¹ See Ventris, M., and Chadwick, J., "Evidence for Greek Dialect in the Mycenaean Archives," *The Journal of Hellenic Studies*, 1953.

PART III: GREEK AND ROMAN ARCHITECTURE

CHAPTER IV

HELLENIC ARCHITECTURE

THE origins of Hellenic architecture are obscure and the discovery of an earlier Minoan civilization has done very little to make them any clearer. After the destruction of Cnossus at the end of the fifteenth century B.C., Minoan culture very quickly declined, and we must regard the later Helladic or "Mycenaean" architecture of Mycenae and Tiryns as representative of the last phase of the Minoan civilization, and not as the first stage in the development of Hellenic architecture. Evidence about Hellenic architecture earlier than the seventh century B.C. is very scanty indeed, and, such as it is, it suggests a vernacular architecture in timber. The gap between late Helladic architecture and early Hellenic must not be underestimated simply because it was a very long time ago. It was a period at least as long as the history of the English Renaissance from the time of King Henry VII to Queen Victoria. In this period Greece was conquered by barbarian war bands from the north. These blond warriors almost certainly had no architectural tradition of their own, and they were not the type of men who would take an interest in the subtleties of architectural design. The conquered population was reduced to that condition of serfdom in which the practice of the arts becomes impossible, but beautiful women-captives, wedded by force to their conquerors, must have had considerable influence. Greek legends tell of many disastrous marriages between barbarian chiefs and women who inherited the ancient Minoan culture. It seems probable that in the home, in needlework, weaving and decoration, perhaps in jewellery, painting and pottery, as well as in religion and superstition, something of Minoan civilization was preserved. Such standards as there were in the arts were probably set by captive princesses and their daughters and their grand-daughters. The arts in those days, as in some later times, were not the concern of virile men and it would be a mistake to believe that artistic culture is governed by a sort of Salic Law¹ of inheritance in the male line only.

We can picture the valleys of Greece, inhabited by small but prosperous and rapidly increasing communities, in which a dominant minority is supported, in bucolic affluence, by a subject peasantry whose condition varies from place to place and time to time, according to the character of the local ruler. The men of the ruling class take a supervisory interest in agriculture and a passionate delight in sport and hunting. Near the coast they interest themselves in the work of the fishermen, and perhaps a little in trade and piracy. They are

¹ See *The Law of the Salian Franks*, Title LIX, p. 6: "But of Salic land no portion of the inheritance shall come to a woman."

proud, quarrelsome and amorous, and their standard of living is fairly high. Their wives have plenty of servants and enjoy a considerable degree of freedom and leisure. On the whole the peasantry are well treated, the grosser abuses of slavery are rare and there is a fair standard of decent behaviour, which evolves into a traditional code, binding by custom upon ruler and ruled alike. There is no political unity among the "clans" which are separated from one another by mountains, but they consider themselves all one people and they meet for certain religious festivals, fairs and markets, which become the traditional occasions for festivities, as they do all over the world. There is no metropolis to set the fashions, and each city considers itself at least as good as the rest. These are the conditions for the development of a folk art, a vernacular architecture.

That a Fraser, a Robertson or a Cameron should, even now, suggest an improvement in the design of the clan tartan is practically inconceivable; that any member of a folk-dancing society should propose an alteration in the ritual of a morris dance which is not sanctioned by tradition is equally unlikely, and it is quite certain that proposals to modernize the costume of the Yeomen of the Guard would be very coldly received. This is the kind of mental attitude which we must associate with Hellenic architecture even when it passes, in the fifth century B.C., out of the folk-art stage and becomes designed architecture.

The amount of building done in the early Hellenic communities cannot have been great. Peasants' cottages and ordinary farm buildings were simple structures of the types that were evolved in the early stages of Minoan civilization and have changed little to the present day. If there was decoration it is likely to have been a crude survival of Minoan art. Even when a more important building was needed, an alteration to the prince's house or a temple, it is improbable that an architect was employed. It is unlikely even that there was what we should now call a contractor or builder. The building work would be done by the peasants and a few local craftsmen; the decisions about the size of building and its general design would be settled by the prince who would tell the builders the "right way" to do it. This, of course, would be the way it had been done before. If a priest had any say in the design of the building his influence was almost certain to be conservative, and the local carpenter, like carpenters the world over, would be very difficult about any difference from the way his father did it before him. Everyone might agree that the new temple was to be bigger and better than the one in the next valley, but it simply would not occur to anyone that it should be *different*.

It seems practically certain that early Hellenic architecture was almost entirely built of timber and the Minoan practice of placing the wooden columns on a stone base was copied, though the taper of the column was reversed. The Greek writer, Pausanias,¹ speaks of there being still one oak column in the Temple of Hera at Olympia when he saw it, and mentions also an oak column from the house of Oenomaus which was preserved as a monument; but, apart from documentary evidence, the traces of timber design are unmistakable in the Doric

¹ See Pausanias, V, 16, 1.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Fig. 5. The Main Groups of Temples and Their Basic Plans Types Taken by the Groups

1. The Temple of the Unknown Gods.
2. The front structural type of the Temple of Athena Parthenon.
3. The Temple of Athena Parthenon, Athens.
4. The front structural type of the Temple of Athena Parthenon.
5. The Temple of Athena Parthenon.
6. The Temple of Athena Parthenon.
7. The Temple of Athena Parthenon.
8. The Temple of Athena Parthenon.

order. It has no logical validity as a design in stone. It started in timber at the beginning of the first millennium B.C., as the trunk of an oak-tree with a slab of wood (the abacus) at the top to protect the end grain from the weather, to spread the weight of the beam and to stop splitting down the grain; but I do not think the echinus moulding under the abacus can be explained in this way. It is bold in the earliest examples and gradually loses its vigour. It seems likely that the echinus comes from Minoan architecture.

The early history of the Ionic order is even less certain, but it seems that basically it is a structural form. Probably the wooden post was more slender than the oak trunks of early Doric and the abacus was extended sideways to form brackets, and so reduce the span of the lintels. This form of construction is still familiar in timber buildings. The Ionic order is characteristic of the eastern Hellenes of the islands and the coast of Asia Minor. They must have come into contact with many influences from the remains of old civilizations immediately east of them as well as with coastwise trade from Egypt. The vegetable origin of Egyptian columns is beyond dispute and it seems not unlikely that the Ionic column derives from the palm-tree. It developed subsequently just as the Doric order did.

The Corinthian order seems to have been a development of the Ionic but this is by no means certain. No examples earlier than the fifth century B.C. are known so it is probable that it was designed rather than evolved as the other orders were. Its name associates it with a city which had contacts with both east and west; a city in which ideas from abroad, from Etruria to Egypt, must have been familiar.

To appreciate Greek architecture in the light of the knowledge made available by modern scholarship, it is necessary to discount the false impression given by the Roman architect Vitruvius and the Renaissance writers. I shall have more to say about Vitruvius later, but it is very important to realize at this stage that all Renaissance thought about the orders of architecture was based upon Vitruvius, and it is now certain that he was incorrect in his assessment of Greek architecture. Even his own claim to have based his rules on the work of the Greek Hermogenes, who lived in the second half of the second century B.C., has now been discredited.¹ It is a striking testimony to the value of modern archaeological methods that, with far less material available, we now know far more about Greek architecture than Vitruvius did.

Hellenic architecture evolved slowly as a folk art and, when (perhaps as early as the beginning of the seventh century B.C.) architect-designers were able to practise in the growing cities, they must have accepted the traditional character of the architecture. There seems to be no reason for believing, as Vitruvius did, that they worked consciously to rules of proportion and design, or that they thought of the orders as unalterable. In fact we know that in the Heraeum at Olympia, as the old wooden columns decayed, they were replaced by stone, and that the design of the stone columns changed so that later replacements differed in design from the earlier ones *in the same temple*. (This case may be exceptional but, if it was, it is curious that Pausanias, who *does*

¹ See D. S. Robertson, *op. cit.*, p. 157.



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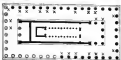
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2



3



4

PLATE 19. ARRANGEMENT OF COLUMNS

1 and 2. The Early Temple of Paestum ("Temple 1" or "Temple 2", western Early 5. c. B.C.).
(Scale of plan: 1 cm. = 1.4 m.)

3 and 4. The Later Temple of Paestum or Paestan 1, 4. c. B.C.).
(Scale of plan: 1 cm. = 1.4 m.)

5. Plan of the Temple OT at Salamis, showing three types of columns. Those marked 1 are papyrus-bundle.

(Scale of plan: 1 cm. = 1.4 m.)

6. Details of two types of columns 2-3.



Fig. 1



Fig. 2



Fig. 3

PLATE III. TEMPLE OF APOLLO AT ARCONCE

1. Front of the Temple.
2. The Temple, showing the columns.
3. The Temple, showing the columns.
4. The Temple, showing the columns.
5. The Temple, showing the columns.
6. The Temple, showing the columns.
7. Plan of the Temple.

mention that one of the columns was made of bak when he visited Olympia, did not comment upon the diversity of columns in describing the temple.) This is very like the Gothic way of doing things, and there is another example of it in the Temple GT at Selinus.

To understand Hellenic architecture we must appreciate some important ways in which the Greek outlook differed from our own.

The first point to remember is that the Greeks did not admire originality in art. For them art, especially architecture, was closely linked with religion. In their religion¹ they preserved, in the worship of the Olympian gods, the pattern of early Hellenic society. The gods were "an upper class." They were feudal barons like the Homeric lords of Mycenae and Ithaca, but untrammelled by mortality. The greatest sin against them was pride—not knowing your place—just as it was the greatest sin of a dependant against his lord. The Olympians were an aristocracy with the normal virtues and vices of aristocrats. Now it is characteristic of aristocrats as a class to be conservative, to regard the established order, which suits them quite well, as being in accordance with the will of God. Such people in ancient Greece liked new ideas as little as most of the squires of eighteenth-century England. The Olympians, especially Zeus, were originally the gods of the ruling class and to a considerable extent they so remained throughout classical times. The poorer people gave due homage to Zeus as they did to their masters, but they also worshipped other and older gods. There were many cults and mysteries and they were celebrated with elaborate ritual, as at Eleusis, with ceremonies of initiation and secrets never to be told. Some of these cults promised an Elysian after-life better than life on earth, but people of the old ruling class exulted in life as they knew it, and thought of death as leading to a dreary Hades. So we see that the official religion, the worship of the Olympian gods, was closely linked with an aristocratic and conservative way of life; and the older cults had mysterious ceremonies which preserved, with strict, unvarying ritual, something of the religion of an older civilization and so were just as strong an influence against change.

The Greeks, though they went a long way towards discovering some of the fundamental truths upon which modern science is based, were interested in nature more philosophically, with a desire to understand it and find some order in it, rather than with the hope of getting some practical advantage from their knowledge. Greek architects were not interested in construction as such but they were interested in an "order of things," such as the Greek scientists propounded. The philosophers had a sense of the pattern of the universe and the architects were influenced by their belief in ideal relationships. They did not work to rules, but they did believe, so far as we can tell, in the *possibility* of ideal proportions. They were constantly striving for perfection of proportion, but there is no reason to believe they thought they had achieved it. So far as we know they never repeated a design exactly.

To a great many Greeks, especially of the upper class, life seemed pleasant in youth but old age and death were dreaded—

There is no wit in man. Creatures of a day, we live like cattle, knowing nothing of how the god will bring each one to his end. Hope

¹ See W. K. C. Guthrie, *The Greeks and their Gods*, London, 1950.



Parthenon, Athens, Greece

and self-persuasion are the nourishment of us all as we seek the unattainable.¹

The Greeks lived in a country where, unlike Egypt, earthquake and tempest were familiar, and, in a society which consisted of a loose federation of autonomous city states, strife was frequent. As their poetry and drama show, the Greeks had a lively sense of the fearful consequences of human passion. The Greeks, like the Egyptians, longed for permanence in a world of constant change and chance. They craved for perfection in a very imperfect world and the highest attribute of their gods was not goodness but *immortality*. That alone marked them off from the princes among mortal men: *their* beauty was imperishable. So Hellenic temples stood, not only as monuments dedicated to the gods, but as attempts to achieve perfection in an imperfect world—perfection of workmanship, perfection of material and finish, and perfection of design. The Greeks—

were quite sure that anything which can be an object of genuine knowledge must be permanent, for it must have some definite character of its own, and therefore cannot contain in itself the seeds of its own destruction. If it is to be knowable it must be determinate; if it is determinate, it must be so completely and exclusively what it is that no internal change and no external force can ever set about making it into something else.²

What could be more *completely itself* than the Parthenon, the supreme achievement of the Greek architectural genius? The Greek designers sought perfection and they used for preference the strongest and most unified of architectural compositions, perfect symmetry.

The Greeks admired the beauty of the human form. In their sport, as, for example, the Olympic Games, they cultivated physical perfection. They conceived the Olympian gods as being physically perfect and their sculpture, the visual art in which above all others they excelled, was an expression of their ideals of physical beauty. They were far more interested in form than in character, and they would probably have disliked the paintings of Rembrandt or Van Gogh if they could have seen any of them. The sculpture of Dobson or Henry Moore would have seemed not only ugly, but impious.

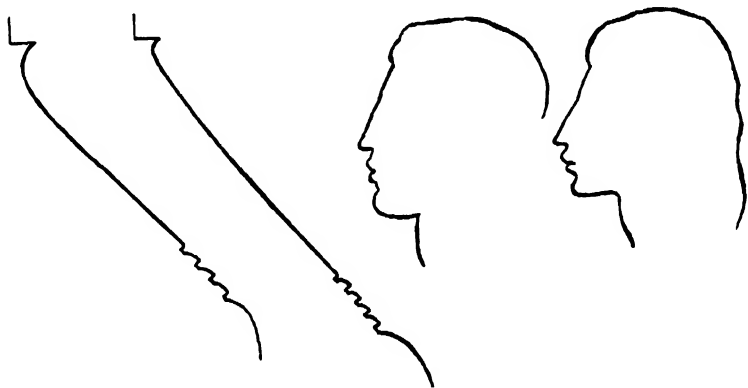
It was to a large extent the result of the four factors which we have considered above that the Greeks developed a very subtle appreciation of differences in shape. There are many reasons why we, in our generation, have become remarkably insensitive to shapes, but we do retain the power to see minor variations where such perception is necessary to us. We have, for example, to distinguish between people, and to do this we have to recognize very small differences between them. The two profiles below are similar, but we have no difficulty in distinguishing them, in recognizing one as male and the other as female; and most people would be able to form some impression of their character. When it comes to mouldings it is quite another matter. Few people would recognize an important difference between the two mouldings, yet to the Greek eye it did matter almost as much as the difference

¹ Semonides (seventh century); quoted from W. K. Guthrie, *op. cit.*

² R. G. Collingwood, *The Idea of History*, p. 20, Oxford, 1948.

between the two faces. Bearing this in mind we may qualify our views expressed above, that the Greeks were not interested in originality. The Greek artist could be quite sufficiently original if he varied the echinus moulding. He did not have to stand a column on its head to make people take notice of him.

The Greeks, though they had, as I have indicated above, many reasons for being conservative, had also a remarkable power of absorbing and transmitting, of changing gradually. This is noticeable in every aspect of their history, and the slow development of their religion in step with their changing philosophy and social organization is



particularly revealing. They kept (unlike the Egyptians) the power to change, and they had the intellectual acuity and the emotional subtlety to appreciate the importance of detail, and so the value of gradualness.

The arts of Greece present a true picture of Greek society both in its strength and its weaknesses. They show on the credit side its unsurpassed appreciation of beauty, its almost incredibly exacting standards of design amounting to a demand for perfection, and its sense of the importance of wholeness, of oneness as an ideal in art and life. Socrates in his life-work, and in his choice of death rather than life without complete integrity, set himself, in the field of morals, the same standards which the best Greek artists set in their work. It is because of this that the pitiful fragments of Greek art are so precious to mankind.

That was not the whole story. Socrates was condemned to death and Phidias imprisoned, and Athens, the greatest of all Greek cities, was no artist's paradise. Ictinus and Callicrates, the architects of the Parthenon, it is not too much to say, achieved perfection within limits; but outside those limits there was much that we, at least, regard as important. Euripides was perhaps the first Greek artist to perceive the possibility of using an artistic medium to express the whole range of human emotional experience, but he was misunderstood and disliked for seeing men "not as they ought to be but as they are." The work of Euripides was a portent, and later Greek humanism was to form an



A. F.



F. F.



B.

PLATE III. THE GREAT TOWER.

1. The tower in detail, showing the decorative arrangement of each floor.
2. The tower in the distance, showing the decorative arrangement of each floor.
3. Plan of a typical floor, showing the decorative arrangement of each floor.



PLATE 15. THE TEMPLE OF APHAEA, AGRIGENTO, c. 480-470 B.C.

important element in the growth of Christianity. In Hellenic architecture it has no counterpart.

Hellenic architecture reflects the fatal inability of Greek society to resolve the rivalries between the city states which led to its political subjugation by Macedonia and later by Rome. It was rigid and unadaptable. It was "ideal" only so long as it did not face most of the real problems. It was indeed primarily an architecture of temples. It was in these that it achieved greatness. The rest of Greek building was interesting, but not of very great importance.

Perhaps the most important question to ask about Greek art is why was it possible for these people—particularly in Athens, a small city by modern standards and not by any means the biggest or the wealthiest city in the ancient world—to produce such works of art as they did, when the vast populations of Egypt and the Persian Empire did not. It is difficult to believe that race was the main reason. The Hellenic peoples were of very mixed stock. It is possible that there was some strain of artistic genius, and it is arguable that the mixture of races and cultures produced an unusually intelligent and alert people; but this does not seem a sufficient reason for so great and exceptional an achievement.

A complete explanation is of course impossible. It is one of those things which are not completely knowable, but I suggest that the following factors were important.

Firstly, Greek religion found expression in the arts. The great dramas of Aeschylus, Sophocles and Euripides were for religious festivals. Most of the best sculpture was of the gods or related to the semi-religious athletic festivals, and the greatest architectural opportunities were the temples of the gods. Artists therefore felt that they were working for something greater than themselves, that they were expressing not only their own feelings, their own personality, but, in their work and through themselves, the feelings of a whole society.

Secondly, because of the religious need for works of art, artists were assured not merely of patronage but of patronage which could not count the cost or consider time, and which must by its nature demand the ideal. It must be realized that Greek religion was, especially in Athens in the worship of Pallas Athene, the adoration of the city and society itself in the person of a sublime patron. It was a largely spontaneous expression and was not dominated by a priesthood anxious to impress—as were the priests of Ammon in Egypt.

Thirdly, there was sufficient wealth to make the practice of the arts possible, but not sufficient for it to seem necessary to impress by display alone or use architecture as a means of solving an unemployment problem. Greek temples were very costly indeed, in relation to the resources of the people who built them. The building of one was a matter of very great importance.

Fourthly, Hellenic society was such that the upper class, though not very rich, enjoyed considerable leisure. There was enough time for discussion, reflection and appreciation. It is one of the remarkable things about Hellenic society that this leisure was so well employed by at least a significant minority.

Fifthly, the conditions existed under which an artist might live. If

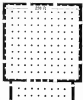


PLATE IV. CLASSIC MONUMENTS IN FRANCE—GIVEN AND FOUND
CHRONOLOGICALLY.

- 1 The Palace of Elgin.
- 2 Column from the Propylæa at Athens at Persopolis.
- 3 The base of a Column.
- 4 Monarch's Hall at Persopolis.



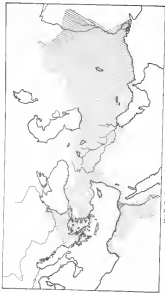
PLATE 18



Museo Pitt. Lit. Rom.

PLATE 19. THE CONCORDIA TEMPLE

1. The Parthenon temple at Athens at Athens, c. 450-430 A.D. 1791.
2. A typical Roman temple, the Concordia temple at Agrigento, 1791.



Map 11 The Common Frog and the Common Toad

he was successful, he would be honoured. (In Babylonia or Egypt he would have had to make his way by sycophancy and have been a servant at the mercy of the whims of a tyrant and an army of bureaucrats.) Great men, artists, philosophers and politicians, were liable to find, when they developed to the point at which it was no longer possible for the people to understand them, that they would have to go. In the Hellenic world of autonomous city states there was always a refuge in exile for the great artist—and often he needed it. Politically, autonomy and freedom in a tiny world, surrounded by powerful and energetic peoples, was disastrous, but it was an ideal, and it begot finer fruits than the conquests of Alexander or of Rome.

HELLENISTIC ARCHITECTURE

In histories which impose the modern strait-jacket of styles upon the architecture of the past, the fifth century B.C. is taken as the high point of Hellenic achievement and subsequent work is regarded as decadent; but it is only in relation to an arbitrary standard of style that Hellenistic art can be regarded as decaying. Process is the life of history. The only real decay, if such a word is applicable at all in the arts, is when the organic process of change is arrested. Up to c. 400 B.C., Hellenic architecture was heroic and idealistic. In the fourth century B.C., Hellenic society, already disrupted by the murderous Peloponnesian war (431–404 B.C.), came under the domination of the Macedonian Philip after the battle of Chaeronea in 338 B.C. His son, Alexander, pushed the boundaries of his empire as far as India (334–323 B.C.). Alexandria in Egypt was founded in 332 B.C. and, after Alexander's death, the Ptolemies ruled there until Cleopatra took her own life in 31 B.C. Hellenic culture was spread across the world and even Indian art shows its influence at that time. Greek ideals, Greek philosophy, Greek art and the Greek language became known to a vast population of many races. Numerous artistic traditions were absorbed and Greek artists found work all over the world in cities far richer than any in Greece had ever been. Hellenism became a world culture and, in doing so, it retained its essential nature but acquired many new characteristics. Above all, the humanism which has already been noticed in the work of Euripides, fostered by the tribulations of long years of civil war and the ruthlessness and intolerance which followed, became an essential ingredient of the Greek culture which was spread abroad. It was not the austere and epic art of the sixth and fifth centuries B.C. but something new, more human, on the one hand more tender, and on the other (especially in architecture) more proud, "more seductive, accommodating and catholic"¹; a new monumentality, a desire for display, an expression of human vanity, and, in religion, the growth of priesthoods propagating their cults by impressive ceremony. We also get a new realism in the attitude of designers towards constructional and functional problems.

The rigid purity of fifth-century design was lost. There was far more variety, more originality, experiment and individuality. Greek architects were prominent throughout the world, building in the Greek way; but we can assume that there were many local variations, and,

¹ W. S. Ferguson, in *Cambridge Ancient History*, Vol. VII, p.1, Cambridge, 1928.

in the more humble kinds of building, many vernaculars related both to the all-pervading Greek culture and to old traditions of design, among them Hittite, Syrian, Persian and Egyptian. The character of most of these vernaculars is unknown. The evidence is lost, or too scanty, but the art of Ptolemaic Egypt is fairly well known. The old tradition of Egypt survived side by side with the Greek but not uninfluenced by it—even in Egypt.

Meanwhile, in the West, two new powers were arising, in Rome and in Carthage.

ROMAN ARCHITECTURE

THE great social and political upheaval towards the close of the second millennium B.C., after the sack of Cnossus, sent many bands of adventurers seeking new homes in the West. Throughout the troubled early centuries of the first millennium B.C. the West, and particularly Italy, was an asylum and a land of opportunity for the surplus population of poor and crowded Greek cities, for exiles and for adventurers.

Among the early colonists of Italy were the Etruscans, probably a Hittite people from southern Asia Minor. They built up a powerful state which extended at one time to the Alps, but which was pushed back by the Celtic peoples over the Apennines. South of Etruria was Magna Graecia where a number of autonomous Greek colonial cities flourished exceedingly. Sicily also was colonized by the Greeks and there are many important remains of Greek buildings there. In North Africa, Carthage was founded by the Phoenicians in the ninth century, and became a powerful state.

In the roughish hill-country south of Etruria and north of the Greek settlements, a little town was founded upon the Palatine hill, probably c. 753 B.C. According to tradition it was called Rome after its founder, Romulus. From the very first the new town had to fight for its life against its neighbours. It was no more than a brigand stronghold. To keep up its numbers it welcomed malcontents and exiles within its ramparts, and it stole women from the Sabines in the hills to the east.

The new town prospered. Often only by narrow margins the Romans overcame their enemies one by one. The Etruscans to the north and the Greeks to the south were subdued and the military power of Rome grew. All the little states of the ancient world went down before it and the vast Roman Empire was built.

Of Roman architecture before the first century B.C., very little indeed is known. This is partly because the sites of early Roman buildings have been built over, often many times, since; but it is probable that early Roman building was small and uninteresting as architecture.

The Greek city states fought wars for survival or because of quarrels with their neighbours. The main effort of their people was turned in upon the city. Opportunity of fame and reward lay in contributing to its beauty and amenities, its wealth or its power. The Greek poet, philosopher, sculptor or architect brought lustre to his native city and he might be honoured for it. Opportunity of fame and recognition lay at home, as it did in the Renaissance city states of Italy.

With Rome it was quite different. The Romans were not content to secure their position locally (even if that would have been possible, which is doubtful). They pushed on and outwards, one war leading to another, and finding themselves not by any means always unwelcome to peoples who were misgoverned by petty tyrants. For the young



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BAY OF HERZLUM

HERZLUM



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Plans of Cases and Room House

1. and 2. Cases and Room House, 1. and 2.
3. Plans of the Cases, Room House, 1. and 2.
4. Cases and Room House, 1. and 2.
5. Plans of Cases and Room House, 1. and 2.



Map III The Continental Extent of the Roman Empire, c. A.D. 100

Roman, opportunity and fame lay abroad. The weakling might stay at home and perhaps grow rich, but high-spirited and idealistic men served the army, founded colonies and became administrators. Such men under the conditions of the small city state might have contributed to philosophy and the arts, for these, no less than conquest, colonization and administration, require courage, integrity and idealism. The proportion of outstandingly able men in any community is never very high, and the whole talent of the Roman people was devoted for centuries to the struggle for survival. Almost incidentally a great empire was built up in which an unprecedented standard of good government, law and administration was attained.

Carthage perished utterly after defeat by the Romans in 146 B.C. but the subjugation of Greece in the same year increased the already powerful influence of Hellenistic culture upon the Romans. Great quantities of Greek works of art were taken back to Rome, especially from Corinth which was destroyed, and the Romans, already in culture and religion akin to the Greeks, adopted Hellenistic forms of architectural design, having none of their own which they considered important. Rome became wealthy and for the first time had money and energy to spare for architectural luxury; but by this time the Roman way of life and thought was formed. An administrative and military aristocracy did not produce artists—it employed them. It might even own them.

It has been suggested that in the arts Greece conquered its conquerors, that “except in a limited and local sense, there was no Roman architecture.”¹ This view is tenable only if we think of architecture in terms of style. Roman *ornament* was very closely derived from Hellenistic architecture. The earliest examples are exquisite in the fine quality and subtlety of their detail in the Greek manner, though there is a progressive falling away from the highest Hellenistic standards, a coarsening of detail as time goes on; but Roman *architecture* is a very different story, for the achievement of Roman architects was extremely important.

To appreciate this achievement we must guard against projecting into the past our modern specialized and professional meaning of the word “architect.” We are concerned here with architecture and it does not matter whether the designers were called architects, engineers, soldiers, monks, master masons or speculative builders, for all these have designed fine architecture at one time or another. The great aqueducts and bridges which the Romans built have often been regarded as works of engineering rather than architecture. I doubt if this is a valid distinction, but whether it is or not the Roman *thermae* of Caracalla and Diocletian were certainly architecture and in them we see the Roman structural achievement at its greatest.

It is unfortunate that the one existing book on architecture written by a Roman architect—*De Architectura* by Vitruvius (written probably not later than 27 B.C.)—was the work of an elderly invalid who was evidently rather reactionary. He appears from his writing to have been essentially a practical man—he is at his best explaining how to make a coved ceiling of lath and plaster—but he had read a good deal and formed some theories about design. How far these were his own and

¹ W. R. Lethaby, *Antiquities of Ionia*.



Figure 10. Bridge.



1

1. 2



2

2. 2

Plate of Roman Architecture

- Columns and arches were used in many different ways.
1. The Portico of the Temple of Mars at Rome, c. 100 B.C.
 2. Roman temple architecture at Rome.
 3. Roman temple architecture at Rome.



Fig. 1.



Fig. 2.



Fig. 3.

**PLATE 19. THE ARCHA OF SEVERUS—THE CHURCH AND LECTURE
AT DIORAPHIC**

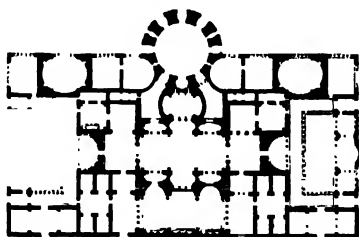
1. *The Colosseum of Rome, c. 100-110 A.D.*
2. *The Arch of Constantine, c. 315 A.D.*

how far they came from Greek writers, it is not possible to say. It is pertinent to ask why Vitruvius wrote his book. He tells us himself that he had not been a very successful architect. He almost certainly had no flair for design, for his whole system is based on geometrical and arithmetical rules such as, for example, that if Ionic columns are 12-15 ft. high the height of the architrave should be half the diameter of the column at the bottom but, if the columns are 15-20 ft., the architrave should be one-thirteenth of the height of the column.¹ We also learn from the text that Vitruvius hoped his work might influence the architectural taste of Augustus and that posterity might recognize him, though he was unknown in his own day—

Sed tamen his voluminibus editis, ut spero, etiam posteris ero notus. Neque est mirandum quid ita pluribus sim ignotus.²

Vitruvius's ambition was realized beyond his wildest hopes, in the sixteenth century, but in his own day it is probable that he was far from being typical in his views and it is certain that his rules, though they were not without influence, were not universally followed by Roman architects. Vitruvius thought in terms of Hellenistic post-and-lintel architecture. He is representative of the conservative, scholastic and stylistic architects of his day. He was not interested in the great new discoveries, the use of concrete and vaulting, nor in a new architecture based upon these. His influence tended to fetter the new architecture with the stylistic trimmings of the old. There is no better example of this than the Colosseum, constructed of arches and faced with columns and cornices. From the stylistic bonds of Hellenistic architecture accepted, along with Hellenistic literature, drama, painting and sculpture, by a people who had not had time to develop an art of their own, Roman architecture did not become free until Rome itself had fallen.

In studying the history of Roman architecture we must be aware of two trends, one Hellenistic and the other a new architecture emerging, which is quite distinct and Roman. I shall consider the Hellenistic trend first. We have seen that it was adopted along with the rest of Hellenistic culture. For the Romans it was in a sense an affectation, a manner; but there was nothing precisely formulated for the Romans to adopt. Hellenistic architecture was not formulated: it was organic.



PLAN OF THE GREAT CENTRAL HALL OF
THE THERMAE OF CARACALLA

¹ Vitruvius, Book III, Chapter V, 8.

² Vitruvius, Book VI, Preface—"Yet by publishing these volumes I shall be known, I hope, to posterity. And it is not to be wondered at that I am so unknown to the public."

The Romans in accepting it took the characteristics of famous buildings and froze them into a style.

In religious buildings traditional Greek forms were closely followed. Temples looked very much like Greek temples but their siting, which was usually in populous towns in some sort of forum, so that they were approached from one direction, made the Romans favour a type with a portico of columns at the front and only pilasters at the sides (pseudoperipteral), though the Greeks had preferred columns all round for major temples. Some temples were round, and, in imperial times, these might be roofed with domes, but it was necessary that temples should look like temples. Innovation was not wanted in such buildings.

We have already noticed that all important Hellenic architecture was religious. The Romans worshipped the same gods, but they made religion a function of the state subordinate to the secular power; and they gave divine status to the Emperor. There is no space here to discuss the complicated ethos of this extraordinary state of affairs. In effect it came to this: the church (pagan) was subordinate to the state and the state claimed divine right. Blasphemy and treason therefore became one and the same thing; but such a religion was not expected to inspire fanatical devotion and a man might worship any other gods he liked so long as he paid decorous lip-service to the official religion. To most people this arrangement seemed perfectly satisfactory and sensible, but the Christians set themselves higher standards. Their integrity was not to be compromised. They set themselves against the domination of a man's mind by the state, and for this they were persecuted.

Roman temples were provided by the authorities, though they might also be built by munificent citizens. In either case they tended to be monumental and impressive, and the maximum effect was required for the money spent. The religion itself was a fossil. It had no life in it and no effect upon architecture. The changes which did occur in temple-building—the tendency towards magnificence and monumentality, the elaboration of detail and ornament—were the result of secular influences, the demand of the client for grandeur and the vanity of architects playing with lifeless monumental forms. There is a close parallel to some monumental architecture of Europe and America about the end of the nineteenth century (see Part VI).

Roman architecture, as distinct from Hellenistic architecture, was founded upon new constructional techniques. Neither the vault nor the arch was new. In fact it may be said that they both exist in nature as caves and are made by animals such as rabbits. The principle is to be seen in the most simple of mining operations and there is no need to suppose that the arch was invented only once—by the Sumerians. The arch was known to the Greeks and occasionally used by them, as at Priene in the city gateway; but the Roman achievement was in developing for the first time an architecture based upon the structural principles of the arch.¹ They also developed a new material, concrete.

¹ The arch had, of course, been used before, but mainly as a substitute. Early architecture in western Asia cannot be said to be based upon arched construction. It merely employs the arch in building without developing its architectural possibilities. It should be noted that the domes of Babylon and Assyria were not arched but corbelled—a very different principle.

This again was not an entirely original idea. It was a new way of using mortar. With concrete, as well as stone and brick, as materials and with arches and arched vaults as structural forms, the Romans began to develop a way of designing which culminated in Byzantine, Islamic and Gothic architecture. In the very period which, judged by stylistic standards, showed the onset of decay, a new architecture was born.

It may well be wondered how it was that the Romans of all people made such a signal contribution to the development of the art of architecture. It has been suggested that they simply adopted methods already evolved by the Etruscans, but the evidence does not support this view. The Etruscans knew the arch, but seem to have developed it little if any more than the Greeks or the Assyrians had done. It is tempting to discern the origin of concrete vaulting in the district round Neapolis (Naples) which has a vernacular arcuated architecture which must be of great antiquity, where a volcanic cement known as "pozzolana" is found (it was used by the Romans for concrete), and where the common occurrence of earthquakes makes a monolithic vaulted form of construction desirable. Such circumstantial evidence can hardly be conclusive and in any case the real *development* of concrete vaulting was the work of the Romans and the greatest achievements were in Rome itself. It is also worth noting that the method of construction described and deplored by Vitruvius,¹ whereby thin skins were built for walls and the centre was filled with rubble and grouted with wet lime mortar, was evidently common practice and itself might lead on to the development of concrete techniques.

Burnt brick was also used by the Romans very extensively instead of stone. The Etruscans, though plenty of stone was available to them, used brick (sun-dried) and developed the craft of making terra-cotta. This is rather curious and may possibly be traced to their Asiatic origin. It is interesting to note that a fine vernacular architecture still exists in Etruria, using brick as the main material. It is not unreasonable to believe that Roman brickwork can be traced back to Etruscan origins, but again certain knowledge is unattainable.

The methods of Roman construction are better shown in drawings than described. The achievement was limited. Construction remained heavy and crude. An enormous proportion of the floor area of a vaulted building was taken up by walls and piers. Thrust was understood to exist and was resisted by mass, but generally vaults were so enormously thick, strong and heavy that they may be regarded as practically monolithic, exerting little or no thrust. The factor of safety in Roman work was enormous, as is revealed by the fact that seventy-ton tank-transporters have used Roman bridges.

By means of the new methods of construction the Romans were able to build the first big rooms unencumbered by supporting columns for the ceiling. They were able to build bridges and aqueducts. They were able to build anywhere. They could support vast auditoria, as in the Colosseum, and they greatly reduced the cost and the difficulty of building. They started an organic architecture which went on developing until the Renaissance.

It is not really surprising that the Romans did this and not the

¹ Vitruvius, Book II, Chapter VIII.

Greeks. It was their lack of an artistic tradition of their own which made it possible. In secular architecture the practical Roman administrator may well have been somewhat contemptuous of the precious Hellenistic aestheticism, of the subtleties of artistic tradition, of the bewildering and arbitrary recipes of Vitruvius. In aqueducts, bridges and fortifications, in arsenals, barracks, stables, warehouses and harbours, the niceties of eclectic¹ design were ignored: the practical problem was solved by the best available means. When the new methods were used for public buildings, however, the old masks were fitted over them. The new architecture was founded, but the Romans never identified themselves artistically with their great achievement. It was to be brought to maturity by other people. Functionalism was not enough in itself. The new way of building became a great architecture only when it was infused with a new culture and a new religion; but the beginning was in Rome about the time of Augustus.

¹ Eclectic (Gr. ἐκ-λέγω, take from). The term eclectic was originally used for a school of philosophers who chose what they liked from various philosophies. In recent years, it has been much used in artistic criticism and its meaning has not always been clear. In this book, eclectic means "chosen," or "selected." It is an implication of eclecticism that there are styles of design among which the designer may choose. He may choose one style for the whole building or he may select details from many styles and combine them.

ARCHITECTURE IN WESTERN ASIA

THE Achaemenian Empire was established by Cyrus between 550 B.C., when he conquered the Medes, and 529 B.C., when he died, having conquered Babylon in 538 B.C. and killed its king, Belshazzar. His son, Kambyzes II, began the conquest of Egypt which Darius continued. Under Darius and Xerxes, his son, the Achaemenian power was hurled against Greece and decisively defeated in 479 B.C. The Achaemenian Empire was destroyed by Alexander the Great in 331 B.C.

The headquarters of the Achaemenian Dynasty in the fifth century was Persepolis in Iran, where there are extensive remains of what must have been a splendid but rather barbaric palace built upon a great platform. It was evidently intended to be impressive and it had hypostyle halls, the largest of them 252 ft. square, and containing one hundred columns of curious design; but these were evidently places for ceremony and it is uncertain what the living quarters were like. Achaemenian architecture was eclectic. The hypostyle halls and much of the detail were imitated from Egypt. Sculpture shows strong Assyrian influence and the columns of the halls, which are similar to those in the rock-cut tombs of the great kings, are clearly related to early forms of the Ionic column. These columns are the most arresting feature of the architecture. They are artistically crude and it seems very likely that the design was a deliberate combination of significant features. The "pillar of the house" still had a magical and religious meaning and it is reasonable to suppose that these were designed more as symbols than as architecture. Combining, as they do, Egyptian, Ionic Greek and Mesopotamian ideas, they may have been intended to symbolize the extent of the empire. Constructionally the buildings of Persepolis show the effect of Hellenic and Egyptian ideas. They are based upon the post and lintel, and not upon the arch. There is no evidence of an Achaemenian style of architecture throughout the empire. In the subject countries the local traditions persisted.

The conquests of Alexander spread Hellenistic ideas about design as far as the Indus Valley, and the invasion of Demetrius, the Greek King of Bactria (c. 182 B.C.), revived this influence which persisted until the establishment of the Gupta Empire (c. A.D. 390). The Seleucid Dynasty (312-65 B.C.) which inherited the eastern part of Alexander's territory ruled over an empire the boundaries of which fluctuated greatly. Antioch was their chief seat of government and Seleucia (Baghdad) was their main eastern city. Architecture was Hellenistic in Asia Minor and Syria; but Greek influence was less in the eastern provinces where the Seleucid power was generally weak and intermittent. The Roman conquest established the Roman style of Hellenistic architecture and some notable buildings were erected, among them the temples of Baalbek and the city of Palmyra.

¹ The Achaemenidae were the Persian kings, whose ancestor was Achaemenes.

From the establishment of the Achaemenian empire in the sixth century B.C., with its eclectic imperial architecture, up to the time of Constantine and the transfer of the seat of Roman imperial power to Constantinople in A.D. 330, the whole of the Middle East was politically shapeless and unstable. It was subject successively to Persians, Greeks and Romans, and the Greeks especially influenced its architecture. Within the major political pattern of successive conquests there was a great variety of small units, such as the Jewish Kingdom, some of them ephemeral and some enduring; and, below the general pattern of Hellenistic architecture in Syria, Asia Minor and Egypt, local traditions survived, influenced, but not fundamentally changed, by Greek art. There is a parallel on a small scale in the survival of English vernacular architecture based on medieval principles in the seventeenth and eighteenth centuries, when classical ideas dominated architectural thought in the larger towns.

The ancient building-methods used in Babylonia and Persia presumably persisted because when Roman power in the West declined they reappeared in designed architecture on the largest scale. It seems probable that a vernacular architecture with walls of mud, brick or stone, with either flat mud-covered roofs or domes of brick, tile, mud or concrete, and very similar to the vernacular architecture which exists in the Middle East to this day, persisted away from the main centres of Hellenistic and Roman culture and for smaller buildings even in the big cities throughout the Seleucid and Roman periods.

With the decline of Roman power, that style of architecture which had become identified with the Roman state was likewise identified with and discredited by its decay. The alien style went out with the alien power. As Lethaby said—

Rome itself, long before the Edict of Milan in favour of Christianity in 313, had been subject to eastern influences; indeed, the removal of Constantine's capital to Byzantium a few years later, in 330, can only have been the result of great causes, long in action, which showed that the true centre of the Empire's life had already moved nearer to the East.

Later in the same chapter of *Medieval Art*¹ he said—

In the Constantinian epoch there were two schools of decorative art in Rome—one splendid, academical, and, on its expressive side, formular; the other the humble art of an eastern sect hidden in the catacombs—a living art for the dead.

In the East, in Byzantium, Asia Minor, Syria and Egypt, culture was essentially Hellenistic rather than Roman. Architecture as practised by Hellenistic architects seems to have remained organic and, while the great public buildings were in the pompous Romano-Hellenistic style, some architects in the eastern provinces were absorbing ideas both from the East and the West, and combining Roman and eastern structural methods.

We have to judge largely by what happened later because very little experimental architecture of the fourth and fifth centuries

¹ W. R. Lethaby, *Medieval Art*, Chapter I, first published London, 1904. (Revised by D. Talbot Rice, 1949.)

survives; but there is enough to justify the conclusion that Hellenistic architecture was evolving towards the tremendous achievement of S. Sophia at Constantinople, even if that building alone is not considered to be evidence enough to prove the point. We can discern dimly behind the work of the successful architects who practised the academic, monumental, official style of Rome a school of designers who drew their inspiration from many sources, including the structural achievement of Rome itself. It is not altogether fantastic to compare them with the pioneers of contemporary architecture who, in opposition to the academicians of the late nineteenth and early twentieth centuries, were germinating in their smaller jobs the seeds of a great new movement. The new architecture of the fourth century A.D. was based afresh upon the fundamental stuff of architecture—construction—and devoted to the service of a great new religion.

PART IV: MEDIEVAL ARCHITECTURE

CHAPTER VII

HELLENESQUE ARCHITECTURE

TERMS which were invented for convenience may in the end corrupt our ideas. We have to have names for periods and kinds of architecture, but we must remember what the names are intended to do. They are a sort of filing system by means of which we sort out the buildings of the past. Some we put into one box or file which is labelled "Romanesque," others into a box called "Gothic," and so on. But the names on the boxes may easily mislead us. If we have only two files labelled, for example, Byzantine and Romanesque, for the four centuries A.D. 400-800, then everything has to go into one or the other, and, simply because we have only two files, we fail to realize that there may be a quite separate kind of design which ought to have a file of its own. In any fresh study of the history of architecture it is important to examine the filing system to see whether the labels on the files are right.

BYZANTINE ARCHITECTURE

It has long been evident that our apparatus for studying the period after the transfer of the capital of the Empire to Constantinople has been faulty. In particular the term Byzantine has been—

used extremely loosely to describe everything produced from Egypt to Rumania and from Mesopotamia to Sicily between the fourth and fifteenth centuries.¹

Clearly this will not do. It has come about largely because in the eighteenth and nineteenth centuries the eastern and Greek component of western civilization was underestimated, as compared with the western and Roman component, which was exaggerated. I shall have more to say about this later when we consider the evolution of Romanesque and Gothic architecture.

W. R. Lethaby was one of the first writers on architecture to perceive the true character and importance of eastern influences upon the West. Since his *Medieval Art* was published, a great deal of work has been done on the architecture of the Middle East, and the terminology suggested by Lethaby has been justified though it has not passed into general use in the study of architectural history. Lethaby proposed that the term "Byzantine" should be reserved for the architecture²—

which was developed to its highest point in Constantinople during the reign of Justinian and for work directly derived from that school.³

¹ W. R. Lethaby, op. cit., footnote to p. 24.

² Lethaby used the word "style" which I prefer not to use for reasons already given.

³ W. R. Lethaby, op. cit.



PLATE 15. TEMPLE OF APOLLO, DIDYMA, AND TAJ MAHAL, AGRA, INDIA

1. Temple of Apollo at Didyma, England, 1891, showing reconstruction of arch and columns.
2. Taj Mahal, Agra, India, 1891, showing reconstruction of minarets.

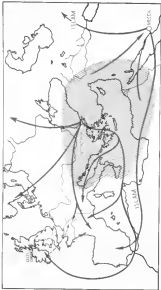


Fig. 1



Fig. 2

PLATE 30 H. SAKIN, ÇARŞAMBA CAMII (ISTANBUL) c. 1550-5
(interior - chandeliers and balcony)



Map IV Eastern Hemisphere in Western Europe, 1492-1500. The area referred to in the text is shaded in grey. The area shaded in black is the area referred to in the text.

This is the sense in which the term Byzantine will be used in this book. We have already seen, however, that, even under the Western Emperors, Hellenistic architects were, independently of the Vitruvian manner and the stylized Roman orders, evolving a new interpretation of structure. This was especially so in Syria and Armenia where there are some very interesting early churches. If we limit the meaning of Byzantine, what word are we to use to describe the architecture of the late Hellenistic world from Persia to Greece, and from Egypt to the Danube? "Late Hellenistic" will not do because this was not the end of Hellenic architecture, but a new architecture born of the union of Greek science and Christianity. The term proposed by Lethaby was "Hellenesque" and it has many advantages but it will not be limited—as Lethaby intended it to be—to Christian architecture, because if we so limit it we shall fail to understand Islamic design. Hellenesque is the counterpart in the East of Romanesque in the West, and, just as we understand that Norman architecture with its greatest achievement in Durham Cathedral is a kind of Romanesque, so we must regard Byzantine architecture with its supreme example in S. Sophia at Constantinople¹ as a kind of Hellenesque.

For convenience, then, we shall consider early medieval architecture under the two main headings, "Hellenesque" and "Romanesque." Hellenesque is the architecture mainly of the eastern Mediterranean area which derived its inspiration partly from the Greeks, but we must not let the name obscure the fact that there were other influences. Romanesque is the early medieval architecture of western Europe. It was derived in part from Roman architecture, and it exploited some specifically Roman constructional methods, but, as we shall see, it was strongly influenced by Hellenesque architecture. We must remember that the classification is for convenience, and not allow it to create in our minds a distinction and a division between east and west which did not in fact exist.

So far we have been able to trace a single direct line of descent from the early civilizations which broke down, to the Hellenic civilization which arose in Greece, and was spread by Alexander's conquests over the whole of the territory of the earlier societies which we have considered. The Hellenistic empire of Alexander broke up, and much of it was conquered by the Romans who eagerly assimilated the culture of the Greeks, and by their conquests in the West extended the influence of Hellenistic art to North Africa and western Europe.

It is true that there was architecture which has not come within our purview—in India, in China and in Central America (Mayan); but we have decided to take a direct route towards our own point of view in the present and the architecture of these civilizations had practically no influence upon the West until very much later.

We have now come to a crucial point in our history. From the fourth century onwards the history of architecture becomes very much more complex. There are many interesting lines of development which produced fine buildings, but to follow them all in a general history would not be possible. Some of the more important I shall

¹ Istanbul.

mention, but we must tend to be increasingly selective and very careful not to lose our way.

After the establishment of Constantinople as the capital of the empire the city grew rapidly in importance and influence. Though it was not by any means the only great centre of Greek culture, its position as capital and seat of imperial power tended to make it more important than Ephesus, Antioch or Alexandria. The rapid growth of Constantinople provided the opportunity for a new architecture, hitherto crude and experimental, to be developed on the grandest scale. Such an opportunity must have attracted some of the best artists in the world to Constantinople. The conditions for stable and prosperous architectural practice existed there for many generations. Painters, sculptors, scholars and craftsmen of all kinds were needed and there was a fairly large intelligentsia. Under these conditions Byzantine art developed quickly and S. Sophia was dedicated in A.D. 537.

The formative stage in Byzantine architecture was short. It did not go on from S. Sophia, but lost its impetus. The reason for this is clear. It is to be found in the form of Byzantine society. The Byzantines were accustomed to the idea of absolute government. They thought of their city as a new Rome: they accepted the universalism of the Roman state and they regarded their emperor as divinely elected. They considered their city to be under the special protection of the Virgin. They believed fanatically in miracles, and they believed the order of things as they knew it to be rooted and grounded in the will of God. To them, democracy meant the overthrow of order—the supreme menace—and any attack upon inherited usage had to face fanatical resistance, as did the iconoclastic movement which sought to abolish the cult of the icon or sacred picture. The administration of the city was carried out by a fairly efficient and ruthless bureaucracy. Constantinople was a bulwark against the barbarians, and for more than a thousand years it never opened its gates to them, though it was constantly threatened.¹

The structure of Byzantine society was hierarchical, its manners formal and traditional. Under such conditions innovation was impossible and art reflected the formality and conservatism which seem to be inseparable from court life. With church and state closely integrated the influence against change was overwhelming.

The constructional methods of the Middle East, which were superior to those of Rome in that they were lighter, gave more freedom in planning and used a smaller part of the area of the building for the purpose of supporting the roof, naturally appealed to sensible and practical men who had a lot of building to do. The principal change which came about in the fourth and fifth centuries was that in place of the barrel-vault and the cross-vault the dome was used, and the technique of using it over square and octagonal shapes in plan was improved. Above all the technique of constructing a relatively light dome, in contrast to the massive domes used in Rome, was developed by the Byzantines, who vitalized architectural thought by their

¹ I am indebted in this paragraph and elsewhere to two broadcast lectures by Professor Norman Baynes, B.B.C. Third Programme, December, 1950.



Fig. 10. The interior of the dome of the mosque at Istanbul.



Fig. 1



Fig. 2

PLATE 30. HISTORICAL ARCHITECTURE IN QAZVIN, EARLIEST CENTURY

1. Mosque (church) of Basmachi in Masjid Shamsi, near Agha.
2. The Dome of the Church of Hagia.



Part 9. Housings of Domes

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

intelligence and ingenuity—their power to see the age-old problems afresh.

Christianity was a very important influence. We have seen that in Rome such buildings as *thermae* and amphitheatres depended upon new methods of construction, unknown or undeveloped in Hellenic times, but they continued to wear a fancy dress of posts and lintels; and in religious buildings old ways persisted almost to the exclusion of new ways of building. With the recognition of Christianity the strongest reason for preserving the old tradition had gone. Indeed there were very good reasons why a church should *not* look like a temple and we may note here that in the West it was not the pagan temple but the basilica which was adopted as the Christian church form. The power of the Christian Church increased very rapidly. The great churches, as well as hospitals, schools and colleges for the Church, were almost certainly the greatest opportunity which architects had. To build a new Christian church, crowned with a magnificent dome to which all the lines of the structure led up, and decorated inside with gorgeous mosaics and marbles, was the supreme ambition of the young Byzantine architect, and at once an artistic and a religious experience.

The once simple Christian ritual of the days of persecution, now intimately associated with the imperial power, became elaborate and extremely magnificent. It assimilated some of the traditions of oriental pagan priesthoods and eastern despotic splendour. The new kind of architecture was adopted by the Church and became one of its outward and visible symbols. This might not have been the end of all truly architectural development but for the fact that Constantinople, already a bulwark against the barbarians of the north—both the capital and the outpost of the Christian world and so intensely conscious of the values which it, often precariously, upheld—was threatened in the south by the rise of Islam to which, in 1453, it succumbed. In a world of stress and change the role of Constantinople was to preserve some of the values of the old order. It was the supreme achievement of the Byzantines that they did save Greek culture until there were other peoples capable of receiving and developing it. These peoples were the Arabs after A.D. 632, the Russians after the conversion to Christianity of Vladimir in A.D. 988, and western Europeans to an extent which varied greatly from time to time from the fourth century onwards.

Constantinople was by no means the only great centre of the Hellenesque artistic culture. Alexandria was hardly less important and it was through Alexandria and the Coptic Christian Church in Egypt that the artistic traditions of Egypt influenced Hellenesque art. The relative importance of Greek, Roman and Persian, Anatolian, Egyptian and other influences upon the character of Hellenesque art is a field for endless dispute, but it will be sufficient for our present purpose to note that Hellenesque was a synthesis.

The influence of Constantinople, because it was the imperial metropolis, was felt throughout the Eastern Empire. Byzantine architecture had become a style in the reign of Justinian—a style of great magnificence such as only the resources of despotism could support—and the originally simple and intensely sincere character of early Christian art was astonishingly changed, so that, in the words of

Strzygowski, the Christ of the mosaics "had to be made imposing enough to deserve the homage of a Justinian and a Theodora."¹

By the end of the sixth century Byzantine art had been stifled because it had been made subservient to politics. It had become "the best means of decking ambition in the garb of beauty."² It had in fact ceased to be art which is expressive of feeling and instead it had become a means of creating dazzling effects. Art had passed "from the hands of creators to those of actors."³

After the sixth century we must look away from the ailing Byzantine Empire for the further development of Hellenesque architecture and here we come at once upon the astonishing historical phenomenon that, because the creative role passed out of the Christian world and was taken up by the followers of Muhammad, it has been almost entirely ignored or grossly misrepresented by Christian historians of architecture, so much so that the architecture of the Muhammadan peoples has even been called a "non-historical style," as though the southern shores of the Mediterranean had ceased to exist for at least four hundred years of history.

ISLAMIC ARCHITECTURE

The Mediterranean is divided into two by Italy and Sicily. Between Sicily and Africa there is a sea passage only about one hundred miles wide. Latin civilization flourished in the western basin of the Mediterranean and from it there rose the Roman Church and the Holy Roman Empire. The eastern Mediterranean was the home of Hellenistic civilization, and here the Greek Church and the Byzantine Empire developed.

Upon this twofold division there supervened, in the seventh century, the rise of Islam. Spreading with the rapidity of an electric current from its power-house in Mecca, it flashed into Syria, it traversed the whole breadth of North Africa; and, then, leaping the Straits of Gibraltar, it ran to the gates of the Pyrenees.⁴

Muhammad died in A.D. 632. Four orthodox caliphs (i.e. successors) followed but on the murder of the last of these, in 661, the Omayyad dynasty was established, and had its capital at Damascus. It was supplanted (except in Spain) in 750 by the Abbasid dynasty which had Baghdad as its capital. The Arab conquerors in the seventh century came of a nomad people. They were "a race of soldiers inspired by religious enthusiasm"⁵ and when they came to the tasks of governing settled communities they employed for building the craftsmen they found on the spot. They took over the architecture of the conquered peoples and in particular the Hellenesque architecture of Egypt and Syria. This was the religious centre of the Muhammadan world and to it pilgrims came from east and west. In Syria, at Damascus, the Omayyad court was established. Farther east, the

¹ J. Strzygowski, *Origins of Christian Church Art*, p. 47, Oxford, 1923.

² J. Strzygowski, *op. cit.*, p. 48.

³ J. Strzygowski, *op. cit.*, p. 48.

⁴ Ernest Barker, in *The Legacy of Islam*, p. 42, Oxford, 1931.

⁵ M. S. Briggs, in *The Legacy of Islam*, p. 157, Oxford, 1931.

Sassanian kingdom¹ had been the refuge of the Nestorian Christians. They had a great medical school in south-western Persia at Jundeshapur. The great Sassanian king, Chosroes Nushirwan, made this city the most important intellectual centre of the time and to it came the scholars of Athens when Justinian closed down the philosophical schools in 529.² Here they met Syrian, Persian and Indian sages. Outside the Byzantine Empire inquiring scholarship, as opposed to preservation, sterile academic disputation and commentary upon the classics, was possible. The arts could remain alive and this continued to be so after the Islamic conquest.

The Arabs are before all else the pupils of the Greeks and the majority of the learned men who have flourished in the world of Islam and under the protection of Muslim sovereigns were not Arabs by birth, and several were not even Muslims.³

We must look to the Islamic world and not to the Christian for the development of Hellenesque architecture after 632.

In view of the vast extent of the Muhammadan Empire, the diverse character of its peoples and the preservation within it of a considerable degree of intellectual liberty, it may well seem surprising that Islamic architecture is so similar in appearance from Spain to India. There are local variations, it is true, and some important differences between the two extreme ends of the empire, but there is undoubtedly a remarkable consistency. The reason for this is that, as in the Byzantine Empire, a powerful autocracy was established and at Damascus first, and then at Baghdad, there was a luxurious and cultured court which set standards for the whole empire. By the time of the Abbasid Caliph, Harun al Raschid of *Arabian Nights* fame, a high standard of taste had been developed. The time of growth and synthesis was over. The recognizable Islamic style was established and it remained in being until the contemporary modern movement at last broke the fetters of tradition and made possible a new stage of development.

Before the stage of growth was over, however, Islam had developed Hellenesque architecture beyond the point which the Byzantines reached in the sixth century. Not that there were new inventions in construction. The discoveries had been made long before, but, from the same sources whence Byzantine architecture had come, the architects of the early Islamic world took other ideas and had the opportunity to develop them from the vernacular and the experimental stage as elements of large-scale designed architecture.

The dome was taken from the Byzantines and altered, probably under Persian influence, to make it easier to construct, and higher and more imposing in architectural composition. Several kinds of arch were developed, particularly the pointed arch and the horse-shoe arch. Corbels, exploited long before in Helladic tombs and probably long before that in the primitive pillars of the earliest temples of the Aegean

¹ The Sassanian kingdom was established in Persia by Artaxerxes who reigned as "King of Kings," A.D. 226-40. He claimed descent from Cyrus of Persia and fought for his kingdom against Rome. Peace was made after the murder of Alexander Severus in 237. The dynasty ended with the Muhammadan conquest of Persia in 651.

² Max Mayerhof, in *The Legacy of Islam*, p. 313.

³ Carra de Vaux, in *The Legacy of Islam*, p. 397.

islands, were at last seen to have great potentialities as elements of architectural design. Finally the rib, known to Roman builders and used by them in brick in some of their concrete vaults, was at last picked out from the mass of heavy concrete in which the Romans usually embedded it. The skeleton of the building at last appeared. The control of forces in lines began. Here we may perhaps discern the influence of the mathematicians for the first time in the history of architecture, for mathematics was much studied both in the East and in Spain. This seems to have come late and was not developed very far in Islamic architecture, but it is the basis of Gothic design.

An important factor in the development of Islamic architecture was the Semitic objection to naturalistic representation, which goes far back beyond Moses and the Second Commandment. Because of the Commandment, Christian Hellenesque art was also influenced by this objection, but not permanently. In Islamic architecture the exclusion of representational art encouraged the growth of a geometrical type of decoration and this both encouraged and was encouraged by the work of the mathematicians. It also made Islamic architects especially conscious of the decorative qualities of architectural forms. Their architecture is remarkable for its fine sense of rhythm, surpassing anything previously achieved in this quality.

OTHER HELLENESQUE ARCHITECTURE

The achievements of Byzantine and Islamic designers were imitated over a vast area. Except in Spain the Muhammadan religion maintained its influence but the Byzantine Empire soon lost its hold upon the West—Italy, Sicily, Marsilles and southern Spain. It left a few monuments of pure Byzantine design like S. Vitale at Ravenna, and it had a powerful influence upon the development of Romanesque architecture in those regions. In Greece and the Balkan countries there was little scope for major architectural works and vernaculars were developed which have, like most vernaculars, much charm. They are all derived from Byzantine architecture and are sometimes called Byzantine, but they are better described as local varieties of Hellenesque.¹

When Russia began to develop politically it adopted the Eastern Church and with it the artistic heritage of Constantinople. The Russian state was autarchic from the first and its architecture was eclectic and has remained so ever since. Away from courts and bishops' palaces the vernacular architecture of Russia was evolved as in the Balkans. A great deal of this was built in timber, and timber construction had some influence upon design in other materials. The Mongol invasions in the thirteenth century brought about interchanges of population. To some extent they brought the ideas of Islamic designers into Russia and generally tended to bring eastern ideas westwards and perhaps western ideas to the East.

The influence of Islamic architecture can be traced as far as China in the east and Spain in the west. Southwards it spread beyond the Sahara desert. Its extension north was facilitated by the Turkish conquests of the fifteenth century, but it is not possible to disentangle

¹ This leads to the rather queer term "Greek Hellenesque."

the Islamic and Byzantine influences which spread up the trade routes to the Baltic and Scandinavia. It is however clear that the characteristic architecture of the Baltic area, as it is to be seen in many pre-Renaissance buildings in Copenhagen and even in Stockholm Town Hall built in this century, is fundamentally Hellenesque, as is the architecture of the Alpine districts of Europe as far west as Savoy. Along the line from Yugoslavia to Norway many influences have met: Hellenesque originated to the east of it and Romanesque, Gothic and the Renaissance to the west.

CHAPTER VIII

ROMANESQUE ARCHITECTURE

THE nature of the so-called barbarian invasions and the break-down of the Roman Empire in the West is often misunderstood. There was no sudden conquest. The first victory of the Goths over a Roman army was in A.D. 250, and thereafter the political and social character of western Europe changed gradually. The barbarian leaders who played a prominent part in bringing these changes about were in many cases not, strictly speaking, invaders at all. Alaric the Visigoth, for example, was a Roman general and his men were Roman soldiers. When the Emperor Theodosius died in 395, leaving the empire divided between his two sons, disputes arose and Alaric, the commander of the eastern army, contrary to the orders of the Eastern Emperor, Arcadius, invaded Italy and captured Rome in 410. It is not known how much damage was done in the sack of Rome, but the city was certainly not destroyed and the churches were spared, because Alaric himself was a Christian. Alaric died and was succeeded by his brother, Athaulf (Adolphus), who married the sister of Honorius, the Western Emperor. Athaulf was granted the right to take his forces into southern Gaul and he ruled there as king of the Visigoths. He remained a loyal subject of the Emperor and sought "the glory of renewing and maintaining by Gothic strength the fame of Rome." Fifty years later the Visigoths were pushed out of Gaul into Spain by the Franks. In Spain they remained, and there were Visigothic kings of Spain until the Islamic invasion at the beginning of the eighth century.

The Vandals were more dangerous enemies of Rome and, having captured Roman Africa, they invaded Italy and sacked Rome in 455.

The Huns, led by Attila, were enemies of Roman and Goth alike. They ravaged eastern Europe up to the walls of Constantinople. Then they swept into Gaul and were decisively defeated by the Roman and Gothic forces at Châlons in 451.

Up to 476, puppet-emperors continued to rule in Rome, but in that year a barbarian chief called Odovakar deposed Romulus Augustulus and ordered the Roman Senate—for this institution still existed—to inform the Eastern Emperor that they recognized his authority and that the empire was now reunited. Odovakar ruled as king of Italy until he quarrelled with the Eastern Emperor who replaced him by Theodoric the Ostrogoth. Theodoric became "King of the Goths and Latins" with his capital at Ravenna. He reigned from 493 to 526.

Theodoric's contemporary was Clovis I, king of the Franks, who conquered Gaul. He became a Christian in 496 and, unlike most of the barbarians, including Theodoric, he became a Catholic and not an Arian Christian. This was important because it made it possible for the Frankish chieftains to gain the support and friendship of the Christian clergy in Gaul. Having conquered Gaul, Clovis recognized the authority of the Eastern Emperor.

Farther north the Saxons invaded Britain about the middle of the fifth century, and not much that was Roman survived their conquest of the south and east of the country.

Only in the conquered part of Britain did the barbarians destroy Roman civilization. Elsewhere in Europe they imposed a new aristocracy upon it, an aristocracy which was in some ways better than the one it partially displaced. It was only a partial displacement for many senatorial families retained their lands under the Frankish and Gothic kings. It is true that there were periods of anarchy and civil war but, in reading the gloomy records of this time, we must remember in the first place that then, as now, disasters had news value, while the ordinary continuation of prosperous farming had none, and in the second that the records were almost entirely the work of churchmen who were fighting, on the whole successfully, against barbarism and were naturally inclined to record the faults more than the virtues of barbarian princes—and there were certainly plenty of faults to record. In the *History of the Franks*¹ written by St. Gregory of Tours, who died in 594, there are many stories of looting, disorder and treachery, and numerous accounts of scandalous behaviour by kings, dukes, counts and bishops, as well as many other people both Frankish and Gallo-Roman; but it is clear that in many parts of Gaul the ordinary life of the countryside went on and, even when towns were sacked as they sometimes were, the effects, though unpleasant for the people concerned, were far less devastating than might be supposed. St. Gregory tells of streets of shops where valuable goods were displayed to the passer-by, and of great churches and country houses which in many cases still belonged to Gallo-Roman families. The Merovingian kings lived in unfortified villas. The picture he gives certainly does not suggest an utterly lawless and depraved society.

There is a very revealing passage in a letter by St. Jerome written in A.D. 413—

We live as though we were going to die tomorrow; yet we build as though we were going to live always in this world. Our walls shine with gold, our ceilings also and the capitals of our pillars; yet Christ dies before our doors naked and hungry in the person of his poor.

Here again we have a picture not of a world in ruins but a world in which the extremes of great wealth and abject poverty are characteristic and in which the leaven of Christianity is working. The period which is sometimes misleadingly called the Dark Ages was one of the greatest creative epochs in the history of man; but it is undoubtedly an obscure period, and its records are both scanty and hard to interpret. The tendency has been to overvalue the importance of the invasions and to underestimate both the significance of the fifth and sixth centuries as a period of social and economic revolution, and the continuity of society, especially in Gaul. There was no catastrophe, no sudden universal break-down. There was a long period of change. On one side of it was the closely knit society of Imperial Rome, based economically upon large-scale agriculture and slave-labour, and ethically upon

¹ Gregory of Tours, *The History of the Franks*, translated with an introduction by O. M. Dalton, two volumes, Oxford, 1927.

materialism. It was a society in which spiritual values had little or no place, in which religion was either conventional lip-service or gross superstition, in which intellectual and aesthetic values became increasingly difficult to uphold, and in which even the Roman idea of law, which was perhaps Rome's greatest contribution to civilization, failed as a means of securing the most rudimentary social justice—mainly, I think, because it tolerated the principle that human lives could be expendable commodities. This was the most malignant of the viruses that rotted the social body of Rome.

On the other side of the Dark Ages is medieval civilization in which slavery has almost disappeared and been replaced by serfdom, in which Roman capitalism has been replaced by feudal tenure based on the idea of land in return for service, the service of the lord to his king and of the serf or tenant to his lord. In theory the Roman Empire still exists and kings owe loyalty to the Emperor; but upon the feudal pattern is imposed the pattern of the Catholic Church. The Emperor (after A.D. 800) derives his right from the Pope, and so from God. The spiritual power is higher than the temporal power. There is constant friction between the two; between Emperor and Pope; between kings and bishops; and, most important of all, in the minds of men of all ranks, between spiritual and material values.

According to St. Gregory of Tours, when the Bishop of Rheims (St. Remy) baptized Clovis I, he began his speech to the king: "Bow thy neck meekly Sicambrian" (*mitis depone colla Sigamber*); and even the wildest of his successors were afraid of the bishops. Throughout the Middle Ages, no matter how men of all ranks might behave in practice, in principle they believed that the things of the spirit were more important than the things of the flesh. They admired asceticism even if they did not practise it. This was true despite the fact that they did have very confused ideas about spiritual values and were prone to most violent disagreements about them, and despite the fact that, as in all periods of history, men's actions are not easy to reconcile with their professed ideals.

During the long period of change from pagan Roman society to medieval Christian society much building was done and we call this building "Romanesque." For convenience, it may be said to begin with the Edict of Milan in favour of Christianity in 313 and to last until c. 1150.

A proper appreciation of early Romanesque architecture is made difficult because little survives, and of what does remain the churches form a disproportionate part because they were saved when other buildings were not, and because churches have aroused more interest than secular buildings. So much is this so that some histories of architecture tend to give the impression that Romanesque architecture was nearly all churches. This is quite untrue.

In the fourth century it is probable that there was not very much new building. Houses were kept in repair and altered, some temples were converted for Christian worship and ordinary maintenance work was carried on; but Italy had become a backwater and Gaul had ceased to develop. What building there was would tend to be simple and economical in a vernacular version of Roman architecture, the

work of the good jobbing builder, not of the professional designer. Some new churches were built. These were the new problem of the age. In them if anywhere lay the opportunity for architectural experiment and development. In fact there seems to have been very little and there was no marked departure from the standard practice of Roman builders. Church-building was all in the day's work and no new architecture came from it. Two main types were developed: one was the basilica, an aisled hall, usually with an apse at the end—the obvious form of plan for a meeting-room, which is what the churches were; the other form employed the dome as a method of roofing and so was circular like the Pantheon. This form was really more suitable for a baptistry than a meeting-room for worship, and the basilican plan was generally considered the more satisfactory. There is no reason to distinguish such churches as a different kind of architecture from other Roman buildings of the period.

Throughout western Europe, the earliest buildings specifically built for Christian worship were Roman. They were not so much the highly stylized Roman architecture of the capital and great cities in the age of the Antonines as a simple vernacular derived from it.

Upon this simple vernacular other influences came to bear and the extent and importance of these influences has been the subject of much not very edifying academic brawling. If we are to understand the complexity of the problem of Romanesque origins I must digress once again into the political history of the period because this provides much surer clues than a study of architectural features and decorative forms.

In the middle of the sixth century Constantinople was the most important city in the world. Justinian was acknowledged as emperor as far west as Spain. Gregory of Tours in his history is careful to relate events in Gaul with the main events in Constantinople, the Merovingian kings send ambassadors by sea to the Emperor's court, and King Chilperic collects Byzantine works of art and encourages the artists of his own country to emulate them. Ravenna with its magnificent Byzantine church is a centre of learning and culture, and we know that from Ravenna in 565 the poet Fortunatus set out and travelled via the Upper Danube and the Rhine, visiting Mayence, Cologne, Metz, Verdun and Rheims to the tomb of St. Martin at Tours. He was an amiable man of letters with "a remarkable facility in inditing occasional verse in honour of the great ones of the earth"¹ and he seems to have had an enjoyable journey and a friendly reception wherever he went. From Spain to Armenia travel and the interchange of ideas were possible. Syrian and Jewish merchants were familiar in Gaul, and Marseilles was a mainly Greek city. Rome was not important at that time and the Pope of Rome had not yet acquired the power and influence which the Papacy had later.

Even from so brief a sketch as this it will be clear that Byzantine influence must have been very strong in western Europe. It is more than likely that not only did eastern works of art reach Gaul, but also some architects and masons from Constantinople itself, and from other

¹ See M. L. W. Laistner, *Thought and Letters in Western Europe A.D. 500-900*, p. 96, London, 1931.

eastern cities of the empire. The artistic centre of gravity was in the East. The vernacular was Latin as we have seen, but fashionable jewellery, embroidery, fabrics, pictures and the like, as well as what designed architecture there was, derived its inspiration from the East. The resulting amalgam is seen at its best in the basilican churches of Ravenna which are Romanesque in architectural conception and Hellenesque in decoration. The churches which Gregory of Tours described at Tours and Clermont seem to have been similar to them.

In the seventh century came the Islamic conquests which reached Spain in 711. By 720 the Moors were in southern and western France. In 732 the Frankish ruler Charles Martel defeated them somewhere near Tours and the tide turned, but they held Spain and it was not completely reconquered until 1492. From the eighth century onwards an architecture which was the product of a highly civilized and cultured people was developing across the Pyrenees from France. This architecture was originally Hellenesque in inspiration and had absorbed ideas from Egypt, Syria, Persia and India. From India to Spain through Persia and along the south coast of the Mediterranean there was constant coming and going, for political and business purposes and for pilgrimage to Mecca, so there was a channel for ideas which linked the East with the West, and kept distant Spain in contact with the luxurious and cultured courts of Damascus and Baghdad.

It is very difficult to assess what influences there may have been across the Pyrenees in the eighth and ninth centuries. Probably there was not a great deal because although the Muhammadans were often tolerant of Christians the Christians were very intolerant of Muhammadans. None the less the possibility of Islamic influence in south-western France cannot be ruled out even as early as the eighth century. It certainly affected later Romanesque design.

In those pregnant centuries which gave birth to medieval society the predominantly Latin world was a narrow strip running from Italy through France, the Rhineland and England to Ireland which had preserved Roman Christianity. East and west and south, it was open to influences from the East, and even the Vikings from the north may have brought ideas and patterns which had come by way of the ancient trade routes from the Black Sea to the Baltic.

It sometimes happens that a country or group of countries comes under strong external artistic influences and the result is deliberate imitation of foreign architecture. Such architecture is called eclectic,¹ meaning that it is chosen and not indigenous. Hellenesque and other influences upon the Latin part of Western Europe did not have this effect in the early Middle Ages. Certainly there was some deliberate imitation, but Romanesque was not an eclectic architecture. It was a really new architecture in the same way that Hellenic architecture was new in the sixth century B.C. and Hellenesque was new in the fifth century A.D. I say that it was new, because in the first place it developed a new structural interpretation of the problem of enclosing space and in the second place it developed new ways of expressing human feeling through the art of architecture. These are the real criteria by which we may judge architecture. Decorative forms are of

¹ See footnote, p. 61.

secondary importance. What matters is that new life has come into architecture so that as an art it becomes capable of being the means of expressing original ideas and feelings. This Romanesque architecture certainly was. Like Hellenesque architecture, it was a synthesis not an aggregation. From many sources it produced a new whole. I think, therefore, that, in a book which is a history of architecture and not a history of decoration, further analysis or discussion of the contribution of Spain or Armenia or Syria to the new architecture would be rather unprofitable; but before we leave the subject I want to emphasize this point, that, whatever the influences, what they acted upon was the vernacular architecture derived from Rome. The fundamental stuff of Romanesque architecture is Roman, *not* the Roman of Vitruvius and the orders, but the Roman of the bridges and aqueducts, of town houses and baths, farmhouses and cottages, warehouses, barracks, shops, flats, city walls and towers, lighthouses, harbours and Christian churches. These were the matrix of Romanesque architecture and it is rightly named, no matter how many individual features we may be able to trace to other origins.

Romanesque architecture evolved in Italy, France and England and it became, because it was a real and living architecture, a true expression of the people who made it. It differed a good deal from place to place—Autun Cathedral, for example, was very different from Durham. It remained organic, and in France and England never became a style. It did not end suddenly, but in the process of growth it changed until it became so different that a new name is needed for the purposes of classification.

The structural principles of Romanesque architecture were—

1. The round arch and barrel-vault;
2. The cross-vault;
3. The dome; and
4. The idea of thrust in lines, and hence the buttress.

The round arch, the barrel- and the cross-vaults came from Roman architecture. The dome as used in Romanesque work was almost certainly Hellenesque in origin. The idea of thrust in lines is of doubtful origin, but its development was taken further in France than anywhere else.

The characteristic material of Romanesque design is stone, but in fact a great deal of building was done in timber. This raises a very interesting point. In Greece we saw how timber forms were copied in stone. In India and China the forms of timber and cane construction influenced the design of masonry. In Russia and Scandinavia, too, timber constructional design was translated into stone; but there is very little sign of this sort of thing in Romanesque architecture, though it has been argued—not very convincingly, I think—that some early work in England (the tower at Earls Barton for example) is derived from timber design.¹ As a general rule, design for masonry owes nothing to carpentry and, undoubtedly, the mason emerges as the superior craftsman in the later Middle Ages. From Bari in southern Italy to Durham in England, Romanesque architecture is conceived in

¹ J. Strzygowski, *op. cit.*, p. 235.

terms of the materials in which it is built. This is so important that it should be added to the list of the structural principles of Romanesque architecture—

5. The use of materials in accordance with their nature.

From this it follows that a change of material means a change of design and this happened throughout the medieval period. It is another reason why medieval architecture varies so greatly in different localities.

ITALY

Justinian undertook the reconquest of North Africa and Italy. After fourteen years of war (539–553) the Byzantine Greeks won. Italy was divided among Greek dukes under a Governor-General who was called the Exarch and lived at Ravenna. In 568 the Lombards invaded Italy and they came in much greater numbers than earlier invaders. They made Pavia the capital of their kingdom and pushed down the centre of Italy, establishing duchies at Spoleto and Benevento; but they did not secure the coasts or the islands of Sicily, Corsica and Sardinia. Ravenna, protected by its marshes, remained Greek. Venice was untouched and so were Genoa, Rome and Naples. The Popes obtained Frankish help against the heretical (Arian) Lombards and as a result of this policy the Emperor Charles the Great (Charlemagne) was able to depose the last Lombard king (his father-in-law, Desiderius) in 774, and in 800 the momentous agreement was made between the Emperor Charles and Pope Leo III, whereby the Holy Roman Empire was constituted. The Empire was divided at the death of Charles' son¹ and his eldest grandson ruled over Germany and Italy. Thereafter German emperors continued to claim authority over Italy but this authority was shadowy and in fact anarchy prevailed. The Papacy passed through a period of complete corruption. The Muhammadans conquered Sicily and parts of southern Italy in the ninth and tenth centuries and then, in the eleventh century, a band of Norman adventurers conquered first southern Italy and then Sicily, where they established the kingdom of the two Sicilies and ruled with remarkable tolerance and a partiality for the arts and customs of their Muslim subjects.

Italy is divided by its physical features into many compact economic units connected only by difficult mountain-roads. These units were appropriated as what we might now call "spheres of influence" by the Papacy² and various powerful noblemen whose behaviour was consistently predatory and rapacious. The ancient cities were not without power to help themselves. They built walls for defence. The nobles built castles outside them and no doubt disputed the surrounding agricultural land with the citizens. The bishops identified themselves with the cities.

The result was that feudalism, as known in France and England, did not develop in Italy to anything like the same extent. The cities

¹ Louis the Pious, *d.* 840. The partition of Verdun took place in 843.

² The Frankish ruler (Mayor of the Palace), Pippin, had given Ravenna, Pentapolis (i.e. the coast from Rimini to Ancona), the coast towns of Romagna and some cities in the duchy of Spoleto to the Pope in 756.



FIG. 1. LEANING TOWER OF PISA



FIG. 2. LEANING TOWER OF PISA

PLATE 98. ITALIAN RENAISSANCE

1. The Cathedral of Pisa, interior and exterior.
2. The Leaning Tower of Pisa, exterior and interior.

remained free and jealously conscious of their rights and traditions. As in the city states of Greece so in Italian cities of the Romanesque period the local artists and craftsmen were "big fishes in little ponds." Hildebrand (Pope Gregory VII after 1073 until he died in 1085) set out to purge the Church of the crying scandals that afflicted it. His programme of reform included the celibacy of clergy, the abolition of the power of the secular authority to make ecclesiastical appointments and the vesting of the right to elect Popes in the hands of the people and clergy of Rome presided over by the Curia of Cardinals. This policy led to the War of Investitures (1076-1122) which was a struggle between the German emperors and the Papacy. During this war both sides bid for the support of the cities which were thus enabled to grow in strength and liberty, to free themselves of dependence on their bishops, and establish the authority of their city councils and their elected consuls.¹

Under their consuls the Italian cities grew prosperous and undertook many great buildings, such as the Duomo at Pisa. They became conscious of their past and even at this early date (i.e. the twelfth century) people were looking back to Imperial Rome as the inspiration of their architecture. A great deal of Roman building must still have existed; not only the vast monuments of which fragments still survive, but churches, houses, tenements, shops and warehouses as well. Many of these Roman buildings were literally incorporated into Italian Romanesque. Columns from temples were re-used in churches. The fabric of houses was modified to suit new needs and to make good decay or damage in war—a process which has been continued to the present day. There are parts of many Italian towns, especially the smaller towns, which look now very much as they did in the fourth century. The tradition of Italian vernacular architecture has been remarkably persistent. Pompeii and Herculaneum are very like the later towns which replaced them, but other towns which were not destroyed are not like but are in actual fabric partly Roman. This growth of Roman into Romanesque has not been sufficiently appreciated because Roman architecture has been thought of almost entirely in terms of Vitruvian stylistic design, and the vernacular Roman has been ignored.

In the various small political and economic units of early medieval Italy, Romanesque architecture developed very differently. In Venice particularly, and generally throughout Lombardy and Emilia, Byzantine influence was strong, decreasing in proportion to the distance from the Adriatic coast. The use of burnt brick and terra-cotta as the almost universal building-materials in the Po Valley was an important influence. The elaborate decorative arts of the barbarians no doubt had some influence for there was a very large settlement of Lombards in this area. The local terra-cotta and encaustic techniques (which go back to early Etruscan times) were particularly suited to the development of the elaborate decoration which became characteristic of the area.

In Tuscany Florence adhered closely to classical forms, but Pisa, a seaport and naval power, produced a much more lively sort of design

¹ Here I leave the theme of Italian political and social history for the present. It is taken up again from this point in Part V.

based almost entirely on the use of a round arch supported directly on the capital of a classical column.

Rome was conservative in the extreme, but in imitation of northern cities brick bell-towers were added to many churches. In general the Roman attitude may be judged from the inscription on the tower of Niccolo Crescenzo built of classical fragments which reads: "Not from motives of ambition, but to revive the ancient glories of Rome."

Farther south, Islamic, Byzantine and Norman influences were all powerful.

The city states, though they developed civic pride and patronage of the arts, had this disadvantage—that a major opportunity occurred only once. At Pisa when the Duomo was built experiment ended. In a small town one such building was overwhelming in its influence and, from the point of view of the architect¹ practising in the city, no like opportunity was foreseeable. So a single great work of art established a local school, inspired and held together very often by the prestige of a single great man. It was not that an "order" of architecture was established, a rule for designing. It was simply that the pond was only large enough for one big fish. The rest were swallowed as soon as they reached a moderate size.² One result of this was the delightful individuality and variety of Italian architecture, as seen by the tourist going from one medieval city to another, and the charming homogeneity of design within each city; but a less happy result was that in the Middle Ages Italians were able to make no important contribution to the *development* of architecture, though they did produce many masterpieces of design. In fact, if the Renaissance had not brought Italy back into the lead in the fifteenth century, Italian Romanesque architecture would be almost as much outside the terms of reference which I have accepted as is the architecture of medieval Greece or Yugoslavia. This is of course not a criticism of its quality as architecture. Much of it is in fact superb in design.

An assessment of Italian Romanesque construction is difficult to make because few datable structures apart from churches still exist, and the dates of these are in many cases controversial. Many Italian buildings were erected over a very long period (the Duomo of Florence is still unfinished, for example). Political uncertainty, war, financial ups and downs and the temperament of Italians all tended to make building intermittent rather than continuous. Medieval Italian buildings were seldom finished in the sense that a modern building is finished when the final certificate is given by the architect. It seems likely that many early medieval architects in Italy would find the construction and maintenance of castles the mainstay of their practices. Certainly many were built, but castles are not preserved like churches. They were frequently modified to meet new needs and sometimes completely rebuilt. Most of the evidence is lost or hopelessly confused by later work.

Conclusions about early Romanesque construction, based on what evidence there is, must be tentative, but it seems that on the whole it

¹ The use of the term "architect" of medieval buildings is discussed later (see p. 103).

² Furthermore, not many cities could have supported more than one architect and when he died his successor had almost certainly been trained as his apprentice.

was conservative. Vaulting was used and the technique kept alive, but the big spans of church naves were normally in timber. The colonnade between nave and aisles gave way only slowly to the arcade. Domes were used in the Byzantine manner at Venice, and on a small scale at Pisa and in the south. The finest dome of the period and a quite exceptional piece of construction and design is in the baptistry at Florence. It is an octagonal vault 90 ft.¹ across and was built late in the eleventh century. Building construction was generally finer and lighter than in Roman work. The standard of craftsmanship was extremely high in the best examples, such as the marble cathedral at Pisa. The heavy masses of Roman architecture were abandoned and Italian Romanesque construction became a finer and more sensitive medium of design.

FRANCE

Of the architecture of Merovingian France (*c.* 486–751) very little indeed survives. We know from records that in the sixth century there were fine basilican churches, but they have all gone and the few buildings which still exist are not representative because they were unimportant in their day. St. Gregory of Tours gives the dimensions of the basilica at Tours.² It was 160 ft. long, 60 ft. wide and 45 ft. high to the ceiling. It had one hundred and twenty columns, fifty-two windows and eight doors. The church at Clermont, he says, was built by Bishop Namatius—

It is a hundred and fifty feet long, sixty feet broad, that is, across the nave, and fifty feet high to the ceiling: it ends in a rounded apse and has on either side walls of skilled construction; the whole building is disposed in the form of a cross. It has forty-two windows, seventy columns, and eight doors. There is felt the dread of God and the great brightness of His glory, and verily there the devout are aware often of a most sweet odour as of spices wafted to them. The walls of the sanctuary are adorned with a lining of many kinds of marble. The building being completed in the twelfth year, the blessed bishop sent priests to the city of Bologna in Italy to bring him relics³

We learn also that the wife of Bishop Namatius built the Church of the Holy Stephen outside the walls—

As she wished it to be adorned with paintings, she used to hold a book upon her knees, in which she read the story of deeds of old time, and pointed out to the painters what subjects should be represented on the walls.⁴

Church-building continued throughout the Merovingian period. The larger churches were of the basilican type with an apse at the east end, they were gable-roofed and the roof was often covered with tin. Sometimes they had a wooden lantern or spire, apparently over the crossing. Such spires were also used on domestic buildings, which

¹ As compared with 138 ft. 6 in., the span of Brunelleschi's dome on the cathedral. The central dome of St. Mark's, Venice, is 42 ft. in diameter. S. Sophia, Constantinople, is 107 ft., and the Pantheon, Rome, 142 ft. 6 in.

² Gregory of Tours, *op. cit.*, II, 14.

³ Gregory of Tours, *op. cit.*, II, 16.

⁴ Gregory of Tours, *op. cit.*, II, 17.



Figure 10a. Exterior



Figure 11. Exterior View

- a. Main facade of the Cathedral of St. Peter, with central entrance
- b. Detail of a window (cathedral window)

apart from this feature seem to have been of the traditional Roman type. A great deal of building was in timber, and we know very little about it.

In Merovingian France, the Church, still largely independent of Rome, was governed by its bishops, who had great power. It was already a state within a state, so much so that, when Queen Fredegond was said to have been slandered by Gregory of Tours, the case was heard by a court of bishops before whom the king appeared as plaintiff.

The power of the kings was weakened by the laws of inheritance. The kingdom was a "possession" to be divided among the sons. This did not work, and it led to fratricidal wars which did not end until one brother was victorious. At his death trouble started again. The evil was made worse by the fact that most of the kings had several wives. The powerful Frankish counts, especially in Austrasia (the Rhineland and eastern France), often changed sides and were out for their own ends. Few of the kings were powerful enough to control them, and the Wars of Succession and the extreme youth of many of the later kings enabled the nobility to reduce the power of the kings until, by the eighth century, they were mere figure-heads. "Good King Dagobert," who died in 639, was the last strong Merovingian king. Like his grandfather, Chilperic, he was interested in the arts and he was the patron of the goldsmith-bishop, St. Eloi. After him the mayors of the palace, backed by the counts, increased their power, and finally Pippin the Short, with the support of the bishops, took the crown in 752. The new and vigorous monarchy (the Carolingians) culminated in the establishment of the Holy Roman Empire by Charles the Great in 800. His capital was Aachen, and there he built a church which was a deliberate imitation of the Byzantine church of S. Vitale at Ravenna. Charles was illiterate, but he was a zealous patron of the arts, of literature, of the Church and of public works. He was deliberately reviving the Roman Empire with himself in the role of Caesar—a new Justinian; but artistic inspiration is not obedient to imperial decree. It does not come to the order of efficient administrations. The church at Aachen is a notable building and no doubt there were others, but it is doubtful whether (even if the political organization had endured) a renaissance so inspired could have borne fruit. There were more powerful forces at work. The future was with the new architecture slowly growing up from the soil of France.

The empire had been inherited by Louis the Pious and at his death in 840 the old evil of Merovingian times came back. His three sons fought for the empire and finally divided it between them at Verdun in 843. Charles the Bald who received France could not hold his kingdom together, and it split up into great fiefs which were more or less independent. The north and west of France was invaded by the Normans. In 841 they sacked Rouen, and during the rest of the century they kept on coming. They came up the Seine and up the Loire as far as Auvergne, burning and destroying, and much of the best early Romanesque architecture must have perished at this time. A basilican church with its timber roof was easily burned, and the unfortified villas could offer little resistance. Some were destroyed and some abandoned. Castles were built and people gave up their liberty

for protection. The feudal system came into being, and France was torn by bloody struggles between the great landowners. Charles the Great had centralized administration and destroyed local government. This centralized authority in the hands of weak kings was usurped by the strong nobles, and a society based on vassalage, on the dependence of the weak upon the strong, came into being. It was not until the twelfth century that a strong central government was re-established by Philip Augustus (r. 1180-1223).

The revolution which took place in the ninth and tenth centuries was no less than that occasioned by the Frankish invasions of the fifth century, and upon the lives of people in France its effects were probably much more painful. Invasion and conquest in the fifth century had little effect upon the architecture or any of the arts of Gaul. The invasion was absorbed and in less than a century a Frankish king, Chilperic, was composing Latin verses.

The Carolingian collapse, the dismemberment of France into little states and the wreck of the old Roman social system based on the villa, the devastating Norman raids, then the colonization by the Normans of a great part of France, the growth of the feudal system and the persistence throughout of the Church and its conversion of the Normans—these things gave birth, in an age of anxiety and trouble, of gross injustice and barbaric callousness, to a great new art. Men began to build afresh, to meet new challenges. Burnt-out churches were replaced by stone-vaulted churches which would not burn, and comfortable sprawling villas were abandoned for compact and fortified castles built of stone. Of the early stages of this we do not know very much, because the crude experiment gets swept away to make room for a better building. Even some of the finest Romanesque work had to go to make way for still finer Gothic cathedrals. Not all Romanesque building was sound. Some experiments failed and fell down; but it may well be that from these much was learned which made later developments possible. Fire remained the greatest risk. Chartres Cathedral, for example, was burnt down twice before the present one was built in the thirteenth century, and even that was seriously damaged by fire in the roof in 1836, but the fireproof construction below survived.

Later Romanesque church-architecture is very different from the early work in the Merovingian period, but the difference is almost entirely structural. The problem was substantially the same, but the building had to be redesigned in terms of vaulting in place of the timber ceilings or open trusses used previously. It is perhaps not very easy for anyone but a practising architect to appreciate what this change meant. It is a problem not unfamiliar to the modern designer. For example, suppose an architect has designed a school with a steel frame and steel trusses to support a pitched roof. The plans go before a committee and the architect is then told that economy in steel is necessary. All stanchions are to be cut out and the load of the roof is to be carried on walls. This means for the architect that the building needs redesigning from the start, but he may have great difficulty in making the committee understand this. Probably they never will realize that they have doubled his work by changing the structural



FIGURE 1. Interior of the Pantheon, Rome, showing the portico and the dome.

system. Design and structure cannot be separated, and every good architect knows this; but the client very seldom does understand that a design made in one structural material cannot be adapted (at least not to the satisfaction of a conscientious designer) so that it can be built by a different structural system. You cannot simply decide to build a concrete design in steel or a timber design in stone; nor can you design a building in terms of a system of vertical loads and change it to one based on a system of balanced thrusts without redesigning it.

This is an extremely important point. If it is not understood, Romanesque and Gothic architecture cannot be understood.

The problem which confronted the designer of a church in the tenth and eleventh centuries was this, in the words of the client—probably a bishop, a very important person indeed, and a busy administrator in matters both lay and clerical—"I want this church rebuilt as it was but with a stone roof." He might as well have asked for the moon, but the architect (he was probably called "cementarius") could not tell him that. Apart from the ordinary practical difficulty of telling a very important person he was wrong, and the even greater difficulty of explaining why, there was the quite insuperable difficulty that the bishop believed in miracles; and so (in fields other than masonry) did the architect. As things turned out the bishop was right; but it was possible to give him what he wanted only by inventing a new way of building, and the final outcome of it was architecture immeasurably better than anything the bishop had ever dreamed of. It took a long time and he did not live to see it.

The trouble about vaulting a basilican church was the nave. Take, for example, the church at Clermont, built by Bishop Namatius. It was "sixty feet broad, that is, across the nave." That dimension probably included the aisles from which there was quite a good view because there were slender classical columns at perhaps 10-ft. centres to support perhaps 20 ft. of wall above and half the weight of a timber roof. The columns were not a serious obstacle. The clear span of the nave was perhaps 35 ft. This had to be spanned by a stone vault—and the span was as wide as the nave of most Gothic cathedrals. The row of columns would not support the mere weight of such a vault. The clerestory wall would collapse outwards because of the thrust.

The answer was the Romanesque cathedral plan. The columns were thickened into piers, the side aisles were vaulted and served to stabilize them. The clerestory walls were buttressed. The nave was made a little narrower. We can, I think, assume that the architect, following the lines of the old plan, thickened his piers to reduce the nave and not the aisles! This was not all. The thrust of the main vault could be taken down through the solid structure of the aisle vaults, but what about the ends? The thrust of the vault north and south was contained, but there was an equal thrust east and west. An apse was obligatory and it would take the thrust of a small vault, but obviously it was not very strong. At the ends of the aisles again there was thrust to the east and west. An eastern chapel in an apse at the end of the aisles was one answer. At the west end the traditional narthex was not enough. It had to be built up, and two towers appeared. We may imagine a rather worried architect explaining

these towers which were to be among the chief glories of French cathedrals—

Well, most pious Lord Bishop, I am afraid we shall have to have something of the sort or the whole vault will fall down.

And, then, rather diffidently—

It did seem to me, my lord, not inappropriate, I mean with two towers at the west end and the third over the crossing. A trinity of towers, my lord.

We can imagine the bishop grunting in a non-committal way, but secretly rather pleased with the idea.

The weakest point in the whole system was the east end because it is quite obvious that, as a buttress to a vault, an apse is weakest where it should be strong and strongest in the middle where there is no thrust. There comes a point when the vault cannot be made higher in relation to width, without overturning the apse. It then becomes necessary to buttress the apse either with stone buttresses or with more apses. Both methods were used.

If you begin to buttress the central apse of a church which has three apses at the east end, you quickly get into a complicated mess. It was very much more convenient structurally, besides being useful liturgically, to make concentric apses and carry the main thrust down from one through the other, and then to chapels or buttresses. This was the method most generally approved and it came to be the standard plan for the east end of French Gothic cathedrals. It is called a chevet.

Now it must be emphasized that Romanesque architecture is not *simply* the result of solving structural problems. There is much more in it than that, and it did not happen all at once in one job. All over France, but particularly in devastated Normandy, with its partly new population freshly converted to Christianity, new churches and castles were presenting fresh problems and they were being tackled afresh. Enough of Roman tradition survived for it to be used as a starting point, but these French architects did not look back to Rome for answers to their problems. If they had done, there would have been no Gothic architecture. Each new building was the work of a designer who conceived the building not only as a structure but also as a church, as a work of architecture expressive of its purpose. He conceived his building in the way that any artist, poet, painter, musician or architect must conceive his work, in terms of the medium in which he is working. If it is a poem it is conceived in words; a statue is conceived in stone, metal, wood, clay or plaster (and differently in each case); a piece of music is composed for a particular instrument or combination of instruments; and a painter does not confuse oils, tempera, fresco and water-colour. The medium is an inseparable part of the work of art. It is the means of expression. The architect's means of expression is *structure*, and that is why the structure of Romanesque design is very important, and it is also the reason why it is not the whole of Romanesque architecture.

Now structure cannot be conceived in the two dimensions of a flat plan, as the layman understands it. To an architect now, as in the

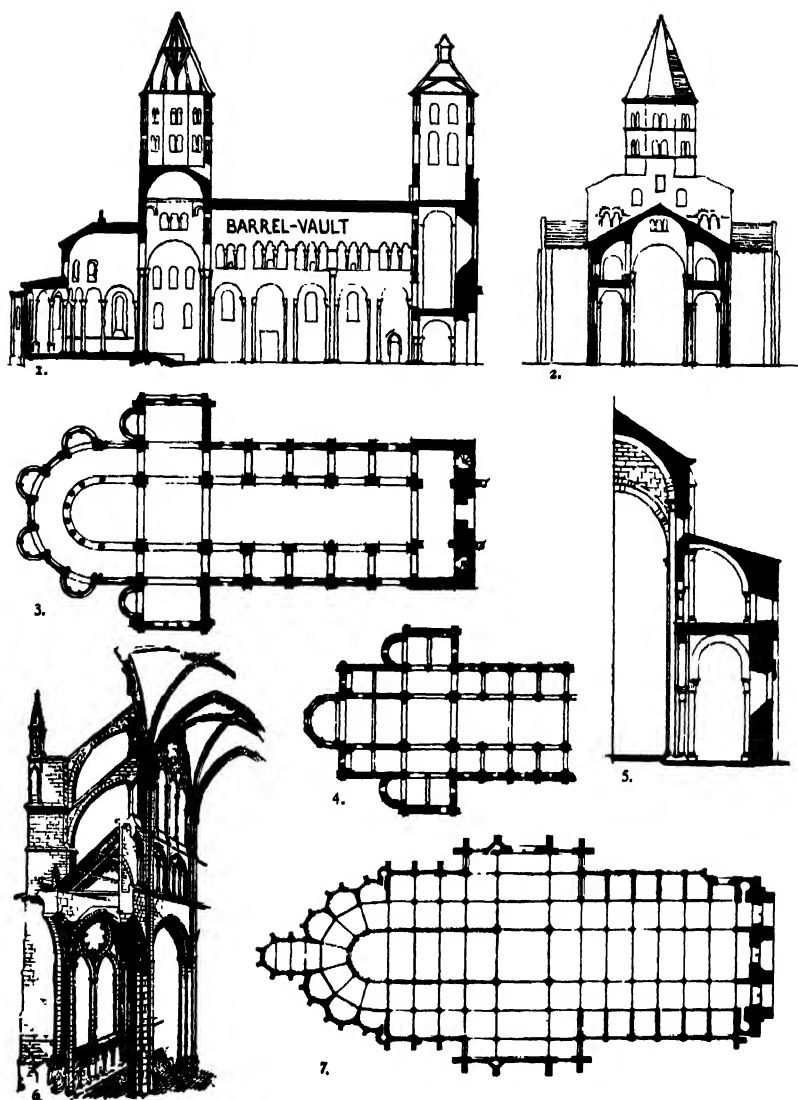


PLATE 39. THE DEVELOPMENT OF THE FRENCH CATHEDRAL

- 1, 2 and 3. Notre Dame du Port, Clermont-Ferrand.
4. East end of the Norman church at Cézizy-la-Forêt.
5. Half-section through the nave of St. Étienne de Nevers.
6. Structural system of a French Gothic cathedral fully developed.
(Based on a drawing by V. le Duc)
7. Plan of Amiens Cathedral.

Middle Ages, planning involves thinking in three dimensions. The horizontal section which the public calls "a plan" is unintelligible by itself. It is a means of expressing part, the horizontal part, of an architectural idea; and so, with very great respect for the extremely fine scholars who have made a systematic study of Romanesque architecture and revealed by careful comparison a great deal which would otherwise have remained unknown, I would suggest that classifications based upon ground-plan types can be very misleading. Such classification is contrary to the most fundamental principle of architecture. It is nearly as inadequate as a classification of men by their footprints would be. If there is to be classification it must be done with a true appreciation of architectural values. If buildings are seen as designs in three dimensions, as enclosures of space, then obvious differences of pattern in horizontal sections will often appear as only slight variations of a single structural theme.

The methods of vaulting used at first were substantially the Roman methods except that they were in stone instead of concrete and were finer and lighter. Both the barrel-vault and the groined vault were used, and, at an early date, the device of constructing diaphragm arches between the piers was adopted to give lateral stability before the vaults were in place and to economize in centering. They are an early stage in the progressive analysis of structure which went on until the end of the Middle Ages. Another device which found favour in the south of France was the Hellensque saucer-dome, but nothing very important came of it. The limitations of this idea had been explored elsewhere; but it may be that familiarity with this method led, later on, to the French practice of vaulting with concave panels between the ribs. By far the most important structural discovery of the Romanesque architects was the rib. A barrel-vault over a nave produces a difficult thrust all along the walls and makes lighting difficult. Turned the other way (that is, at right angles to the axis of the church) and supported on diaphragm arches, it is aesthetically unsatisfactory. The intersection of two barrel-vaults produces a groined vault, but this vault made in stone tends to be very weak at the groins. The Romans sometimes reinforced these groins with brick ribs, but these ribs form "an integral part of the vault itself and have no structural independence."¹ It would seem to be obvious that the thing to do was to construct an arch along the line of the groin to hold it, but so far as we can tell no one thought of this until the eleventh century. The earliest examples seem to be in Durham Cathedral (1093) and in Lombardy at Sannazzaro Sessia, near Novara, possibly as early as 1040,² but the date is disputed. My own opinion is that it is unlikely that the first experiment in this kind of construction would have survived. There may have been earlier examples among the great number of Romanesque buildings which have been destroyed. It is more than likely that the system was tried out in a castle dungeon or over a small chapel before it was used for the nave of a church. In any case the idea is such an obvious one that there is no reason to suppose it was thought of only once—though that may be the case. Whatever may be the truth about the origin of the

¹ A. W. Clapham, *Romanesque Architecture in Western Europe*, p. 33, Oxford, 1936.

² See A. Kingsley Porter, *Lombard Architecture* and A. W. Clapham, *op. cit.*

ribbed vault it is certain that it was first exploited architecturally on a great scale at Durham. It is interesting, and I think not surprising, to find that the greatest achievement of Romanesque architecture was not at Paris or Rouen nor even at London or Canterbury, but in the far north, away from elderly authorities and influential young pedants who no doubt existed then as at other times. With the Norman conquest of England which began in 1066 the centre of interest shifts away from France to England. Just at the time when French architects had solved the main problems of large-scale church-building in stone a great new field of opportunity was opened up. By its nature it was an opportunity for youth and experiment. It was backed by a ruthless aristocracy and zealous and ambitious churchmen. There must have been many abbots and bishops who had got promotion for which they would have had to wait a long time in Normandy. There must have been a great shortage of skilled masons to design and build churches and castles. It was a time of opportunity for energetic young men with ideas. It is no wonder that it was an age of achievement; but before we consider Anglo-Norman architecture we must go back and look at Romanesque architecture in England before the Normans came.

ENGLAND

There was architecture in Britain before the Romans came and there was a fine tradition in the arts of decoration, smithing and jewellery. Most of the buildings were probably in timber and some of them may have been of architectural merit. Ramparts and fortifications had been constructed on a great scale, as at Maiden Castle and Cisbury. At Stonehenge there was a great temple built of stones which must have been a considerable architectural monument and there were many other smaller stone structures of an architectural character.

The Roman invasion brought Roman design and ways of building. The country became Roman and artistically a late and unimportant appendage to the Latin world. The mediocre standards set by Rome were overwhelming in their influence. The wealthy Roman in Britain would regard local art as curious "native" art. The possibility of successful artistic initiative in Britain just did not exist.

When the Anglo-Saxon invasions came and Roman protection was withdrawn—

the Britons had the will to fight; what they lacked was experienced leadership, both in politics and war. This was inevitable; it was everywhere the result of late imperial government, where all executive power had been transferred to the officials of the centralized and bureaucratic state, to the suppression of local initiative and civic spirit.¹

The same might have been said of the arts of Britain. They died of administration.

What happened when the Saxons came is by no means clear, but it does seem fairly certain that a large proportion of the sub-Roman British population survived and mingled with the invaders, to whom we must suppose they taught a good deal. There is a strong case for the survival of Celtic vernacular art as an influence on English design.

¹ J. N. L. Myres, *Roman Britain and the English Settlements*, p. 307, Oxford, 1936.

Of architecture in the sixth century we know practically nothing, but there must have been a lot of building (almost certainly in timber) because at this time most of the Roman towns and, so far as is known, all the Roman villas were deserted and allowed to decay.¹

Christianity had probably survived in parts of England but it was not important. The Celtic missions of St. Columba to Iona and St. Moluag to Lismore in about 562 started the spread of Christianity from the north, and the mission of St. Augustine in 597 re-established Christianity in Kent.

Celtic Christianity did not express itself in big buildings, and generally it is true to say that throughout history Celtic Christians have tended to prefer the intimacy of small religious communities and to distrust architectural grandeur and the organization needed to create it. The influence of the Celtic church was mainly upon decoration rather than upon architecture. Roman Christianity spreading from Kent brought with it Romanesque ideas of building, and basilican churches were constructed similar in essentials to those of Merovingian France. The earliest churches in south-east England were, as might be expected of mission churches, all of a type, a simple adaptation of the basilican plan, a rectangular room with an apse at the east and with side chapels to the nave. These churches were constructed of stone and had timber roofs. The most important surviving building of the seventh century is Brixworth church which was probably built c. 670. An interesting feature of this is the faceting of the outside of the apse and the use of small buttresses at the angles. This has suggested Hellenesque influence and it is certainly possible that an architect from Ravenna, for example, came to England in the seventh century. Another interesting feature both at Brixworth and at the church at Reculver (built c. 670 and demolished 1805) is that there was a triple arcade dividing the nave from the chancel.

English architecture evolved slowly, and until 950 it was essentially an architecture of verbal instructions and working out on the job. Decorative masonry kept in a rudimentary way to the forms of Roman design² and the pilasters and arcades at Earls Barton and elsewhere seem to be the same architectural idea as the arcades of Pisa cathedral. They both come from Roman architecture.³ The purest form of this decorative arcading is at Bradford-on-Avon. I think it is likely that a Romanized vernacular survived the invasions and influenced the development of English architecture, but this can be only an opinion.

Unfortunately, all the major buildings of the tenth and eleventh centuries, including the cathedral which Edward the Confessor built at Westminster, have been lost. From what little remains it seems that English Romanesque was developing parallel to the development in France, and that certainly in sculpture and decorative detail, and probably also in elegance and proportion, it was superior to Norman design.

¹ The belief that they were wiped out with fire and massacre is not now accepted. See J. N. L. Myres, *op. cit.*, Chapter XIX.

² See Baldwin Brown, *The Arts in Early England*, London, 1903.

³ I cannot accept the suggestion made by Strzygowski and others that the decoration of Earls Barton simulates timber construction. The forms are not at all the forms of design in timber.



Fig. 1



Fig. 2



Fig. 3

Plans of Renaissance Architecture in Venice

1. Basilica of San Simeone Piccolo, Venice, 15th century.
2. Basilica of Santa Maria della Salute, Venice, 17th century.
3. Basilica of Santa Maria della Salute, Venice, 17th century.

After the conquest Norman influence was overwhelming. By 1076 all the sees in England with the exception of Worcester were held by foreign bishops and they nearly all seem to have had a passion for building—

The coincidence of this unrivalled opportunity with the progressiveness and vigour of the Norman school of Romanesque produced a renaissance of architecture in England which forms one of the great epochs of architectural history.¹

Practically every important church was rebuilt, and many new ones were founded.

The Norman conquerors were as scornful of the houses of the English as the bishops were of their churches. There must have been a great boom in building of all kinds. Thousands of men gained experience in masonry work, and so the great body of skilled and semi-skilled labour which made later developments possible was trained.

The Norman achievement in architecture is impressive. It was intended to be. To understand what it was really like we must imagine the great Norman churches like Durham, Peterborough and St. Albans stripped of all the softening details which were added later. Seen as the Normans made them they are brutally impressive, strong, vigorous and crude in detail. The Normans—

were the closest of all peoples to the barbarian strain in the continental order. They had produced little in art or learning, and nothing in literature that could be set beside the work of Englishmen. But, politically, they were the masters of their world.²

How much of the English tradition survived it is very hard to tell. Probably until the rebellion in 1069 English influence was important because, until then, King William tried to govern through Englishmen who had held office under King Edward. After that it appears from the character of the architecture that Norman influence predominated, but many English craftsmen, and perhaps designers, must have been employed, and they gave to Anglo-Norman architecture its distinctive character; but the scale was new. The great castles and cathedrals and even the parish churches were bigger than anything that had been attempted before. It is significant that few churches were stone-vaulted. For the most part the Normans seem to have wanted quick results and were content with timber roofs. Detail was standardized—the sort of stuff which could be turned out by the yard. There was little sculpture. Construction was heavy and not always very sound, and there was a large factor of safety³ to allow for rough and imperfect workmanship.

An important precedent was established in the early Norman churches. They had remarkably long naves. At Norwich there were fourteen bays, at St. Albans ten. The long axis, as the ancient Egyptians realized, is a most impressive architectural idea. A long, low building was cheaper and easier to build than the high French cathedrals. It

¹ A. W. Clapham, *English Romanesque Architecture after the Conquest*, p. 19, Oxford, 1934.

² F. M. Stenton, *Anglo-Saxon England*, p. 678, Second Edition, Oxford, 1946.

³ Excess in foundations.

appears that the main difference between French and English cathedrals, namely, that the former tend to be compact and high and the latter long and low, was a result of the conquerors' wish to make magnificent buildings quickly and cheaply with relatively unskilled labour.

Undoubtedly skill, both in craftsmanship and design, improved towards the end of the century. The early vigorous period of Anglo-Norman architecture culminated in the magnificent structural design of Durham (begun 1093) and the almost elegant proportions of the nave of Ely (early twelfth century).

There was a lull in the first half of the twelfth century, especially during the disorderly reign of Stephen (1135-54); but disorder was not the only reason why the impetus was lost, why little progress was made with ribbed vaulting and why interest shifted from the architectural conception to the elaboration of detail. Indeed, since building did continue, and the political anarchy did not stop and may even have encouraged the growth of monasteries, we must look further for the real reason why the development of Anglo-Norman architecture slowed down.

The second generation of architects since the conquest was growing old. There was almost certainly a tendency to sit back and admire what had been done. It may well have been felt by the older and more influential masons that in Durham the limit had been reached—and, short of structural changes, so it had.

In sixty years the church had settled down, and that inertia which seems to be inevitable in human institutions, and which so often masquerades as respect for tradition, had had time to develop. It may also be relevant to observe that for a very long time after the conquest the Norman element in the population of Britain was somewhat inclined to prefer physical to mental exertion.

The Cistercians came c. 1128. Inspired by the zeal and fame of St. Bernard, they lived austere and their early monasteries were very simple. St. Bernard disapproved of "the immoderate length, superfluous breadth, costly polishing and strange designs" of contemporary churches. The discipline of the order was such that during his lifetime at least (1115-53) Cistercian abbeys were very plain. Towers were forbidden and a simple square-ended building was prescribed. The order soon abandoned the strict rule of St. Bernard and built such splendid abbeys as Fountains, but the square end remained. Before the conquest the Celtic churches had square ends, and we noticed the curious feature of buttresses to the eastern apse of Brixworth. It is interesting that after the invasion these two forms should have re-asserted themselves. It may be that the Cistercian rule was not the only reason why the later medieval cathedral in England usually had a square east end with buttresses to support it. It was a very important feature because it made possible the development of the great east window and it made impossible a very high east end, unless it could be supported by a Lady-chapel beyond.

The reign of Henry II (1154-89) brought strong government, prosperity and greater security, but English architects remained lethargic. The pointed arch was used simply as an alternative to the

round arch, and the jump from Romanesque to Gothic was not made until near the end of the century. English architecture really came to life again in the stormy reign of King John. While at Durham the elaborate Galilee was being built (c. 1175) with round arches, Notre Dame in Paris, begun in 1163, was being built with pointed arches, and flying buttresses. The Anglo-Norman school had lost the initiative: so we must now go back to France.

THE LATER MIDDLE AGES: GOTHIC ARCHITECTURE

BEFORE we can appreciate Gothic architecture it is necessary to shovel away a good deal of romantic rubbish. The term "Gothic" itself is misleading because the Goths had practically nothing to do with Gothic architecture. There would have been a fairly good case for calling it Frankish, but certainly not Gothic. However, some label is needed for architecture which is not Romanesque and is earlier than the Renaissance. "Later medieval" is clumsy and, besides, the term Gothic is in general use and it must crop up again in "Gothic revival." ("Later medieval revival" is far too clumsy.) It seems best to accept the word Gothic as the name of later medieval architecture, from the twelfth to the sixteenth century.

This was one of the greatest, if not the greatest, period in the history of architecture. Not only did it produce many superb buildings from Notre Dame in Paris to King's College Chapel in Cambridge, but it went on changing and producing more and more buildings, all different, over a period of four centuries.

I do not want to dwell for long upon the naïve misconceptions which have obscured the true character of the Gothic achievement, but some mention of them is essential.

It is now proved beyond possibility of doubt that the design of the great Gothic churches and castles was the work of professional designers, whom we should now call architects.¹ The fantastic suggestion, once widely believed to be true, that they were the work of abbots and bishops in their spare time, is now quite discredited. The even more crazy belief that the cathedrals were the spontaneous expression of popular religious fervour is also disposed of.

The building industry in the Middle Ages was a highly organized industry employing a very large number of workers. Accounts have been preserved which prove what is quite obvious to anyone with experience of building—that vast sums of money were spent on medieval architecture. Then, as now, people were careful about money, and there was certainly nothing spontaneous or amateurish about the way in which it was spent. The Gothic cathedrals and castles could not have been produced without competent administration of very large sums of money and very efficient site organization. These were in the hands of the clerk of works and the architect (master mason).

It is difficult in our generation to realize that the Romantic movement is of recent origin and that the distinction between Romantic and Classical is a modern critical conception of which Gothic designers had no inkling. There were no art critics in those days and there was

¹ A good deal of research has been done on this subject. Two very useful books, the first a very detailed factual survey by economists and the second a more general account by an architect, are: Knoop and Jones, *The Medieval Mason*, Manchester, 1933; and M. S. Briggs, *The Architect in History*, Oxford, 1927. See also L. F. Salzman, *Building in England down to 1540*, Oxford, 1952, and J. Harvey, *Henry Twelfth*, London, 1945.

nothing but old architecture and modern architecture. It did not occur to people to be deliberately old-fashioned—it was too absurd. If in the fourteenth century the chancel of a Norman church fell down you built a modern and better one. It is perhaps even more difficult for us to realize that, to people who lived in the fourteenth century, Fountains Abbey or Tintern Abbey or Kenilworth Castle as they now stand in carefully preserved ruin would have been blots on the landscape. They would either have repaired them or used them as quarries. I do not suggest for one moment that that is what we ought to do now. There are very good reasons why we should preserve them most carefully. I simply make the point to bring out the fact that for the medieval man, who had little or no sense of history, who was, even in his religion, extremely practical and realistic, crumbling stone had no charm, and ivy-clad ruins no enchantment. Gothic architecture was not intended to be picturesque.

Renaissance ideas about architecture are still so widely accepted that it is by no means easy to realize that many beliefs which are thought to be axioms of architectural design and criticism were totally unknown to medieval architects. In our own time ideas have been changing very rapidly. Architecture is again organic. Renaissance principles are discredited. Structure is again the medium of the architect and we are in a much better position than our grandfathers to understand what Gothic designers were trying to do; but the problem of explaining what their aesthetic was is made very difficult because there is little concrete evidence other than the buildings themselves. Some Renaissance architects wrote about architecture and we have acceptable documentary evidence for their beliefs. Our judgment of Gothic architecture still has to be very largely subjective, but we may perhaps get a useful clue from the writings of St. Thomas Aquinas (c. 1225-74). Complete knowledge of ultimate reality, he said, is unattainable by man; yet nothing less than complete knowledge will satisfy him; but in the immediate perception of some things a man can get by intuition and without laborious discursive thought a satisfaction which is like the complete satisfaction on a small scale. This is because the ultimate reality appears in or through these things—

Objects which the form thus shines through or illuminates are peculiarly suited to our faculties of perception and are beautiful.¹

St. Thomas wrote—

For beauty there are three requirements. First a certain wholeness or perfection, for whatever is incomplete is, so far, ugly; second a due proportion or harmony; and third, clarity, so that brightly coloured things are called beautiful.²

It would, I think, be quite wrong to suggest that medieval architects had any sort of formal aesthetic, but St. Thomas's beliefs are extremely interesting. Objects which the form shines through, completeness, clarity, brilliant colour—stand in the nave of Chartres Cathedral and

¹ E. F. Carritt, *Philosophies of Beauty from Socrates to Robert Bridges*, p. 50, Oxford, 1931. The quotation is from Carritt's summary upon which the whole of the paragraph is based.

² *Summa Theologica*, P. XXXIX, 8, quoted from E. F. Carritt, *op. cit.*



А. П. Н.

Рисунок 41. Дворец Саломона, 1150-1160 гг.



Fig. 101



Fig. 102

Fig. 103

Platz 91: Eastern Garrison

1. Eastern Castle, East, early middle century
2. Remains of the wall, East, middle century. The north side of the wall is.

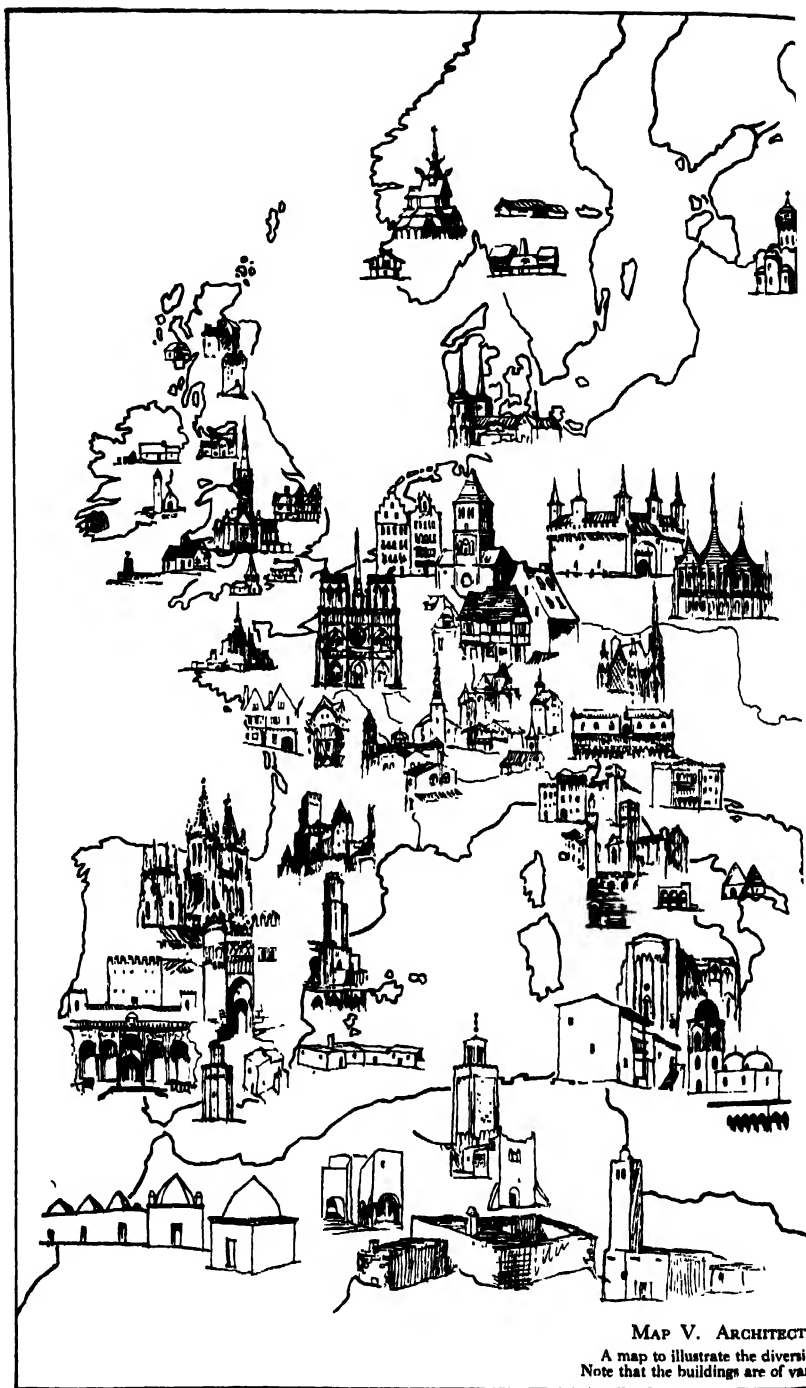
look towards the east end and it is easy to believe that the architect would have agreed with the philosopher. Climb up to the roof of a Gothic cathedral and find that there is sculpture where no one would normally see it. It was not only that God would see what was hidden from men's eyes—there was also the belief that what was unfinished was ugly. This seems to imply that the power to perceive beauty must depend on knowledge and intelligence, and not on the mere physical ability to see.

To base a division of Gothic architecture into periods on decoration and window tracery is to misunderstand it. In the first place, Gothic architecture was all sorts of architecture, and not only churches. In the second place, window tracery was subsidiary to the main structure (it can be removed without affecting stability) and its purpose was to support stained glass. The whole tendency was towards the reduction and elimination of mullions. They might be called a *recessive* rather than a dominant characteristic. The form, which I think is what mattered to the medieval designer, is in the solids, not in the windows; in the piers and ribs, not in the tracery. I doubt if it is even true to say that there were changing *fashions* in tracery, because the development was continuous, not spasmodic. Tracery does, however, provide a useful guide to dating; but it is not always reliable. The spread of new ideas into remote places was sometimes slow and individual designers here and there preferred old ways.

Gothic architecture is not so much the product of a system of construction as of an attitude towards construction. The systems of construction employed varied greatly from the ribbed stone vaults and balanced thrusts of the cathedrals to the massive walls and corbelled battlements of castles; from the skilfully poised timber of hammer-beam roofs to the rigid oak framing of half-timbered houses. All these are Gothic architecture but, whatever system of construction is adopted as most suitable in any particular case, the design is in terms of that system of construction; and very little indeed is transposed from one system or material to another. So Gothic architecture in timber looks quite different from Gothic architecture in stone.

We may contrast this attitude with the classical practice of imposing the design upon the material, of imposing columns upon the arches of the Colosseum and of imposing timber forms upon the Pentelic marble of which the Parthenon was built. Opinions will differ about which is the right approach, but this, at least, can be said for the Gothic idea: it is unlimited and it is capable of infinite development and the exploitation of any material. The supreme achievement of Gothic architecture was in building churches of stone. The architects gradually improved their techniques of design until they reached the absolute limit of possibility in stone construction. They were almost incredibly daring. By the end of the fourteenth century the form shone out practically pure. The construction of a cathedral had been so refined that it was like an athlete in perfect training.

The idea was to support a roof, a dark wonderful web of a vault, and hold it as high as possible with the slenderest support, and then to enclose it all with glowing coloured glass. This glass was the perfect medium of decoration, painting with light itself shining right through



MAP V. ARCHITECT

A map to illustrate the diversity
Note that the buildings are of various



BEFORE THE RENAISSANCE
pre-Renaissance architecture.
dates and are not to the same scale.

the interior. Sculpture and painting upon walls were nothing to this. The mosaics of Constantinople or Ravenna were sombre indeed with mere reflected light beside these glorious windows. You can see them still at Chartres.

Sculpture and painting were superb too. Little of the painting has survived. The best is in Italy where the climate has been kind to it: there is not much painting in the world which is better than that which Giotto and Cimabue did. The sculpture is not ideal like the work of the Greeks. It covers the whole range of human emotion, the sense of sublime majesty, reverence, love and sorrow, right down to grim or bawdy humour. All these things take their place within or upon the building. Hundreds of men have contributed, some just as dressers and layers of stones, but very many as individual artists working within the one great conception, the supreme work of art which is the architect's design.

Few cathedrals were built all at once. Very many were altered and contain work done in every century from the eleventh to the fifteenth. This is perhaps the greatest marvel of all, the greatest lesson in artistic expression and in humility. Just as it was possible for the painter and the sculptor to contribute to a whole greater than their own single works of art so it was possible for the architect to see his own addition, whether it was a new nave such as Yevele built for Canterbury, or just a new doorway to a vestry, as part of the whole. This means that each architect in the long succession throughout the centuries reconceived the building as a whole, a slightly different whole because of the alteration he was making. Mistakes were made sometimes. There are errors of scale and awkward junctions, but they are rare indeed. This is a very wonderful thing and the result of it is that many of the medieval cathedrals are still not the collection of beautiful bits they might have been, but unified works of art made by many men during many centuries.

The organization of medieval building work differed considerably from the usual modern practice. There were no great firms of contractors and the work was done by a system similar to that which we now call direct labour. Important building work was done by the Church, by the king, by municipalities and by powerful noblemen. The client (that is, the building-owner, king, Church, nobleman or municipality) provided the capital and usually appointed a clerk of works in charge of the job. He was an administrator and he must not be confused with the modern clerk of works who is a sort of watch-dog. The status of the clerk of works has greatly declined. The medieval clerk of works was an important official. The best known of medieval clerks are William of Wykeham and Chaucer. William of Wykeham was a remarkably capable administrator. He entered the service of Edward III c. 1347, and twenty years later became Bishop of Winchester. In 1356 he was clerk of the royal works at Henley and Easthampstead and surveyor of the works at Windsor. In 1359 he was surveyor of Windsor Forest and chief warden and surveyor of the castles of Windsor, Leeds, Dover and Hadleigh. Chaucer in 1389 was clerk of works at Westminster Palace, the Tower of London and Berkhamsted Castle, as well as seven manors and some houses.¹

¹ Knoop and Jones, *op. cit.*, p. 24.



A. P. R.



A. P. R.

PLATE 41. MILITARY ARCHITECTURE IN ITALY AND FRANCE

1. The Castle of Capri, near Naples, Italy.
2. Heights of the walled city of Carcassonne, France.



FIG. 1



FIG. 2

PLATE 49. PARIS AND BRASSERIE CARMONAIS

1. Brasserie Carmonaix, exterior view.
2. Brasserie Carmonaix, "The exterior" is brightly colored.

(Building of the new house) (Source: Musée de la Ville)

Such clerks of works, it appears, would appoint architects, or architects would be appointed with whom they were to work. For major buildings the architect was a master mason, but for timber work and even for major items of timber construction in a stone building the designer was a master carpenter. So it might happen that there was more than one architect on a job.

The division of work between clerk of works and architect varied a good deal. In general the financial responsibility rested upon the clerk and it was his job to get materials; but accounts were checked by the architect and he was responsible for hiring workmen, fixing wages and organizing work on the site. That this was sometimes a very considerable responsibility may be gathered from the figures given by Knoop and Jones¹ for a busy period in the building of Beaumaris Castle. There were four hundred masons, thirty smiths, one thousand unskilled workers and two hundred carters, a total labour force equal to about 13 per cent of the number of workmen employed in all the trades and commerce of London at that time. This was a single royal castle in Wales and it gives some idea of the scale of medieval building operations. It is clear that, though the medieval architect was relieved of some of the responsibility and office work which falls to the modern architect, he had instead a great deal of administrative work on the site which is now usually done by the contractor. There is this advantage for the medieval system, that the architect and his staff were in very much closer contact with the actual work of building than the modern architect can be. He had the smell of mortar and stone dust always in his nostrils and he was constantly with the men who were doing the building. He also had to cope with strikes, restrictive practices and bad workmanship; with arguments about rates of pay, with deliveries of materials, with housing and feeding the workmen, with disputes among artists and craftsmen on the job, and with the sometimes considerable difficulty of getting money to pay wages. Medieval architects must often have been very worried men and to build the great Gothic castles and cathedrals they must have been tough indeed. It was not the familiar toughness of the big modern contractor. It was the toughness of a Michelangelo. I think the reason is this—that not only was design thought of in terms of construction, but the actual building was done by the designer. Much has been said in recent years about the value of the medieval system whereby the student architect was trained as a mason or carpenter. It is by no means proven that this was usually the case. A master mason's apprentice may have had very little training in the cutting and setting of stone: we do not know. What is much more important than the way the apprentice was trained is the way the master worked and it is quite clear that for him designing and building were not separate activities. He would no more have thought of employing a contractor to build his building than Giotto would have employed a contractor to paint his pictures. Neither the architect nor the painter did all the work himself but he was in artistic control of it. Design and execution were inseparable.

Now in modern practice (with rare exceptions) the work of

¹ See Knoop and Jones, *op. cit.*, Chapter I.

designing and the work of building are separated. The designer is called an architect and he is responsible for getting the work done, but only rarely does he know who will build it when he is making his design. When the contract is placed, with the best will in the world there is bound to be a cat-and-mouse relationship between architect and contractor. The contractor must carry out the architect's design exactly according to the drawings. If in doubt he must ask the architect. The contractor is normally given no say in the design and his interest in the work must be different from the architect's—especially if he does not like the design, which may well be the case.

It will be seen then that the modern architect is not the exact counterpart of the medieval master mason. The modern architect is half the medieval mason plus most of the clerk of works or controller. The other half of the master mason is the modern contractor plus the part of the medieval clerk of works that organized the supply of materials. The whole organization was different. Are we then justified in calling the master mason (or master carpenter) the architect? I think we are. In the first place the present "set-up" is of recent origin and may not last, but the word "architect" will. In the second place this is a history of architecture, not a history of architects as we now know them. There is a human activity (most people would call it an art, and I think rightly) which is the designing of architecture. The product is recognizable throughout history. The term "architect" is the only appropriate word in modern English to describe the people who design such architecture; and the means by which they achieve the result, whether it is the medieval or the modern or another method, does not alter the fact that architecture is designed. Now there is no doubt that in the vast majority of cases the designer of Gothic buildings was a master mason or a master carpenter. He was the architect of the building in the same sense that Ictinus was architect of the Parthenon, Brunelleschi of the Pazzi chapel or Vanbrugh of Blenheim. They were all employed by "clients" to design buildings and get them built. A man who designs a building and gets it built is an architect. The medieval master craftsman did rather more than some of the others.

Before we leave the subject of the designers of Gothic buildings I want to emphasize the fact that so far as can be seen in the present state of knowledge about medieval architecture there was no standard practice. A mason might become a clerk of works. The administration might be done by the client or, as was often the case with monasteries, a permanent official of the community (usually the sacristan) might administer the works. Some architects were engaged for particular jobs and others held salaried appointments with pensions.¹ Master masons might deal in stone to supplement their income and both masons and carpenters might undertake small contracts, but they were not in a position to provide capital for big jobs.

It may reasonably be said that Gothic architecture came into being in the twelfth century in France, but it may well be asked what there is to distinguish Gothic from Romanesque architecture. It would be quite wrong to say that it was the use of the pointed arch and the French term "*style Ogival*" is woefully misleading. The pointed

¹ See Knoop and Jones, *op. cit.*, p. 96.



Рис. 91. Деревянные постройки в Кавказе

192 21

1. Деревянный дом в деревне Красная, Кавказ.
2. Деревянный мост в деревне Красная, Кавказ.
3. Деревянный дом в деревне Красная, Кавказ.
4. Деревянный мост в деревне Красная, Кавказ.



FIG. 1



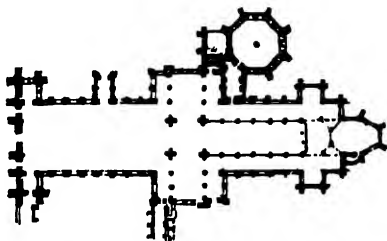
FIG. 2

PLATE 47. MONASTERY, SANTA CATALINA, MEXICO, c. 1480-1520

arch had been used extensively in Islamic architecture and it is by no means unknown in the Romanesque, both in France and England. Besides, Gothic architecture is not all churches nor even all masonry. The half-timbered houses of the later Middle Ages are not a different kind of architecture. They are the same kind of architecture using different materials. There is another objection to the idea that Gothic is an architecture of the pointed arch and that is the quite important fact that in the course of its development the point became more and more blunt. In late Gothic architecture elliptical and three-centred arches as well as lintels became common.

The truth is that medieval architecture is all one. Its origins as we have seen in Part III (p. 59) must be sought in Rome not later than the Augustan age. The break-down of the Western Empire freed architects from the fetters of stylistic design, and in the early Romanesque we see a gradual shedding of Roman mannerisms and a gradual emergence of an organic architecture; but the influence of the past remained very strong. There was no confidence in the new architecture and when an emperor like Charles the Great promoted considerable building work the design was old-fashioned. Poets like Fortunatus in the sixth century modelled their verse on the classics. The very idea of the Holy Roman Empire itself was retrospective. The new society, the new culture and the new architecture were constantly affected by the fact that people, and especially influential people in church and state, could not get the faded glory of Rome out of their minds. Something of that nostalgia lasted throughout the Middle Ages until the Renaissance.

In the eleventh century the new forces—social, political, economic, religious, cultural, all infinitely complex—had built up, as it were, a tremendous pressure and suddenly burst and overwhelmed the old. At this time Christendom went over to the offensive against Islam. Toledo was captured in 1085 and the First Crusade was preached in 1095 at Clermont. The conflict between the Church and the Empire blazed up into the War of Investitures (see p. 86). Peace was patched up but the conflict went on and still does. Basically the issue, as we now see it, was the vital one which had led to the Roman persecution of Christians and driven a mortal blow into the body of Roman society, the right of the individual to spiritual freedom. Of course it was not seen quite like that in the eleventh century. On the surface it was a struggle for power between church and state (and a cynic might say it was no more than that); but underlying the dispute about the right



PLAN OF GLOUCESTER CATHEDRAL



J. P. K.

PLATE 48. THE EAST END OF GLIMMERING CATHEDRAL.

of kings to appoint bishops and popes was the principle that the Church must be master in its own house, that the law of God was higher than the laws of man, that the spiritual was more important than the temporal. It must not be supposed that at this time the Church was the champion of the individual conscience against the state, still less that it recognized the right of a Saracen to be a Muhammadan if he wished; but the ideas which made such conceptions possible in the future underlay the crude clash of powers of church and state.

The Church itself entered upon a period of drastic reform, and its whole character was affected by the enforcement of celibacy. Prior to the reforms of Gregory VII priests and bishops had frequently been married. The enforcement of celibacy did not mean that overnight they all became continent but it did relieve them of family responsibilities. It made possible a different kind of life and it had, I think, some bearing upon the change in architecture. The comfortable, rambling, seldom properly finished Romanesque churches of France are so very different from the ambitious soaring architecture of the twelfth and thirteenth centuries. There is an emotional difference here and to appreciate what it meant we must try to realize the tremendous respect medieval people had for chastity. The great Gothic churches are one expression of the austerity, piety and devotion of medieval churchmen; but it is interesting and important to notice that some of the most devout and revered minds in the medieval Church—among them St. Bernard and St. Francis of Assisi—deeply deplored this outburst of architectural expression. Peter the Precentor said that the passion for ecclesiastical building was bad for the monks and drove the lay poor into deep distress.¹ In fact the economic strain imposed upon medieval communities must have been very great.

In seeking a distinction between Romanesque and Gothic architecture we have observed three powerful forces at work in the eleventh and twelfth centuries, the counter-attack upon Islam, the conflict between church and state and the reform of the Church. To these we may add another very important factor, the emergence from the long struggle between the barons and the kings of a rather unstable *modus vivendi* based upon feudalism.

I can now try to answer the question "What is Gothic architecture?" and I think the answer is this. Gothic architecture begins when the last links with ancient Rome are severed, when men start looking forward instead of back over their shoulders. This means that the popular instinct which has linked Gothic architecture with the pointed arch is right to this extent—that the abandonment of the round arch was a decisive break with Rome. The pointed arch opened up new constructional possibilities which, if exploited, must make a new architecture.

Where did the pointed arch come from? A great deal has been written about this and I want to make only this comment. A whole crusading army might go to Jerusalem and nobody realize the architectural possibilities of the pointed arch; but one hard-bitten old veteran reminiscing over a pot of wine in company with an intelligent stone mason might say: "They build queer arches with points to them."

¹ See G. G. Coulton, *Life in the Middle Ages*, Cambridge, 1928-30.



Plate 45. The Tomb of Caliphate Caliphate, 1337-40
 (caption: Alay Faidi)

That could start it. One traveller from Cordova might do it. One Christian mason (Mozarabic) driven out of Spain by the intolerant Berber dynasties—as many were in the eleventh and twelfth centuries—might do it; or a Syrian mason captured by pirates and sold as a slave in southern France might do it. The great Florentine architect, Brunelleschi, would not disclose the secret of his method for building the dome of S. Maria del Fiore. “If I do,” he said, “the other architects will say: ‘That’s easy. I could do that just as well as you.’” An idea, once it is born, spreads in strange ways. It does not need a crusade. It needs somebody who can see its possibilities. In architecture the next stage is that it must be used successfully in a building. After that its influence spreads far and wide. Within living memory several buildings have had enormous influence.¹ Photography and printing have undoubtedly helped, but without them the same sort of thing happened in the twelfth century. Masons, as Knoop and Jones have shown, moved about a good deal from job to job (at times they were conscripted and sent to work in remote places) and the district in which the first great experiments in the structural use of the pointed arch were carried out was not large. Its location is interesting. Most of the great French Gothic cathedrals lie near the border of the duchy of Normandy along a line running from Le Mans through Paris to Amiens. This frontier zone suffered great damage from the Norman raids but it was not part of the Norman conquest. The Normans learned Romanesque architecture in the part of France which they conquered, and they brought their architecture to conquered England; but in France, in the frontier zone, Gothic architecture was born.

The pointed arch was most useful in vaulting and in buttresses. In vaulting it gave great flexibility and in buttresses it could be made to conform to the lines of thrust much better than the round arch (see diagrams on p. 95). The voussoirs of the round arch had to be deep to contain the line of thrust. A pointed arch can be made to conform to the thrust, and so it can be made very much finer. The use of pointed arches therefore tended to reduce the size of all members. The weight of the vault was reduced and the thickness of arches was reduced. As a result the size of supports, both piers carrying vertical loads and buttresses supporting oblique loads, could be reduced. The refining process continued throughout the period. The three main ideas which made the Gothic cathedral possible were the rib, the pointed arch and the control of thrusts.

A little more must be said about the third of these. The basic idea was one which is now familiar. If two forces operate upon a point there is a resultant force, the strength and direction of which can be calculated. There is no evidence that the Gothic architects used such calculations but they did understand the principle.

There were other structural principles employed by Gothic architects. Among these the corbel, or bracket, and the cantilever were extremely important. The corbel was used in churches to a great extent but its possibilities were not developed very much. It was used in domestic architecture and it is particularly characteristic of castle

¹ Cf. Stockholm Town Hall; The Bauhaus, Dessau; Pavillon Suisse, Paris.



Fig. 2



Fig. 3

PLATE 35. Eastern-European Gothic Architecture

1. Chapel of Henry VII, Westminster Abbey, 1500-1520.
2. The interior of St. Basil's Cathedral, Moscow, 1550-1560.

design. The cantilever was most exploited in timber and half-timbered houses. It was the general practice to project the upper floors beyond the ground floor. In timber roofs there was an immense range of experiment, but the carpenters do not seem to have refined their construction as much as the masons did. There are some inconsistencies and crudities, but, on the other hand, it is clear that there was little the carpenter-architect did not know about the practice of forming trusses, and it is interesting to note that in roofs as in the framing of the sub-structure the trussing was often three-dimensional (see p. 116).

Gothic constructional technique included practically all the possible ways of using the materials they had, except for a very few of recent invention, such as timber lamination. Each technique was developed where it was suitable. The appearance of architecture resulted from sensitive artistic use of specific materials for specific jobs.

Gothic architecture might be called a dynamic vernacular. The vernacular was enlivened by the activity of artist-designers working in it. Now this was possible because the Roman idea of a style was not accepted. I say "not accepted" because the idea was known. Vitruvius is known to us only from *medieval* manuscripts of which there are many. It seems perfectly clear that if copies were made throughout the Middle Ages there was a demand for them. The copy at St. John's College, Oxford, for example, was made in 1316, probably at Canterbury.¹ No doubt medieval architects and churchmen found much that was useful in Vitruvius, but they certainly did not follow his rules of design.

Though the idea of style was almost completely absent the idea of tradition was certainly not. There were traditional ways of doing things. These ways were localized and undoubtedly to a great extent they were the result of local materials and requirements—but not entirely. There was another factor—decoration. Now decoration is an art and it satisfies a fundamental human need.² It is by no means limited to architecture, and it has a life and powers of development quite independent of architectural design, in dress, manuscript, pottery, jewellery and many other things. Under Imperial Rome folk arts, like vernacular architecture, survived, but for wealthy and cultured people decoration became stereotyped and went stale. In the Middle Ages decoration was alive and full of meaning. Decoration is not an art of structure as is architecture: it is an art of expressive pattern. It is much more immediate and personal than architecture and so it is sensitive to immediate and personal things, whereas architecture which takes a long time to create and is produced by the work of many minds and hands is less immediate and is responsive to social movements. Fashion affects decoration much more than it affects architecture; but decoration influences the superficial appearance of architecture a great deal.

Now it has often been said that there is no real Gothic architecture in Italy. This is, I think, quite untrue. Outside a few big towns where much building was done during the Renaissance, Gothic architecture is still the most conspicuous and exciting architecture in a great part of

¹ See Preface by F. Granger to Vitruvius, Loeb Classics, London, 1931.

² See my *Decoration and Furniture*, Vol. I, *The English Tradition*, Chapter I, Pitman. London, 1952.

Italy; but it does not *look* like the French or English cathedrals. There is no reason why it should. The misunderstanding has arisen for two main reasons: firstly, the Italians had little opportunity and less inclination to exploit pure structure as the northern French did; secondly, the vernacular *decoration* of Italy was not only as a whole quite different from the decorative traditions of the north, but it was also very diversified throughout Italy. The basis was a Roman vernacular, but Byzantine, Lombard, Islamic and Norman influences were all strong and the vernacular absorbed many foreign ingredients. It retained a rather nostalgic love of the round arch as a decorative form. Add to this the fact that materials differed, that, for example, coloured marbles were available, that the climate was different and so roof-construction and fenestration were quite different, that the building of castles and fortifications absorbed the major part of the available labour and finance and that in many districts—Siena and Ferrara, for example—brick and not stone was the main material and the master bricklayer more in demand than the master mason. It would be very surprising indeed if Italian Gothic did look like English Gothic architecture.

The same sort of argument applies to Spain, to southern France, which was sleepy and old-fashioned in the Middle Ages, to the Low Countries, where bricks were generally used, to Denmark, where Hellenesque influence was felt, to the Alpine districts, where timber construction, the problem of snow and the aesthetic demands of a wild mountainous terrain affected design. The nature of Gothic architecture is such that we should expect it to look different wherever we go.

It is sometimes said that Gothic architecture was in decline when the Renaissance came. This is at best only a half-truth. It is true that French and English churches of the late fifteenth and early sixteenth century can show examples of elaboration for its own sake, but King's College Chapel at Cambridge and Henry VII's Chapel at Westminster are masterpieces. It is true that stone construction had reached its practical limits. Nevertheless, the Gothic *idea* was capable of infinite extension. The weakness was that, lacking new materials, it might elaborate construction for the sake of elaboration. There is evidence that this was happening in ecclesiastical architecture; but it must be remembered that, at the end of the Middle Ages, church-building was becoming less important. The demand was largely satisfied. The Church was torn by the struggles of the Reformation. In England the monasteries were abolished. For the best Gothic architecture in the sixteenth century we must look to another kind of problem, to the new problem of comfortable domestic architecture. The castle had become out of date. The feudal system had broken down. Trade was increasing. If we look at the town and country houses of the sixteenth century in England, France, Belgium, Holland or Germany, there is little there to justify the idea that Gothic architecture was finished. It was as good as ever; but, by the time Henry VIII came to the throne of England and Francis I to the throne of France, both with the reins of a strong centralized government in their hands, the Italians had revived Roman architecture.

PART V: THE RENAISSANCE

CHAPTER X

THE ITALIAN HUMANISTS

AFTER the War of Investitures (1076-1122) the Holy See remained in the hands of Italians, the power of the Emperors was curtailed and free cities as we have seen (p. 86) grew prosperous under their consuls. (The system survives in the city state of S. Marino.) The very term "consul" indicates the close derivation of the society and culture of the new city states from ancient Rome and their architecture, as at Pisa in the Duomo, is consciously related to Roman architecture. Following the lead of the Lombardic cities, the Romans, animated by a monk called Arnold of Brescia, proclaimed a republic and revived the Senate and other Roman institutions.

The cities were surrounded by castles belonging to counts. As the cities grew they needed more and more land round them, and so they fought the feudal aristocracy for it. Most of the counts were forced, by siege, assault, persuasion or debt, to come to terms with the cities and to become citizens living at least part of each year within the city walls. So they built themselves palaces which were really fortresses, with tall towers, and continued their private quarrels within the city walls, thus creating difficulty for the civic authorities who, in an attempt to preserve order, appointed *podestas*. These were in effect dictators for one year only. They were foreigners; they had troops at their disposal and they had powers of life and death; but this dangerous institution did not resolve the two incompatible elements within the city and it did prepare the way for later permanent dictatorships. The bringing of the nobility into the cities destroyed the last vestiges of feudalism, liberated the serfs and brought about a fusion of the Italo-Roman and the Germanic and other peoples of Italy.

The War of Investitures between Emperor and Pope, though it gave power and freedom to the city states (communes), left a deadly legacy of party strife. The causes of the Emperor and the Pope became excuses for strife within cities and between cities. Within the cities there were, as we have seen, irreconcilable elements, and between cities there was rivalry. The cities fought for survival, for food, ports, commerce and all the means of subsistence. The fundamental reason why the city states could not combine for their mutual benefit was that each, by its very existence, was a threat to the survival of others. This economic rivalry was a constant element infusing venom into the rather vague ideological conflict between the Guelph and Ghibelline parties, which owed allegiance to the Pope and to the Emperor respectively. The boldest and perhaps the most ruthless stroke even in this prolonged, bitter and bloody struggle for survival was the diversion by the Venetians of the Fourth Crusade (1198) to conquer

Constantinople, and the result was the establishment of a Latin government in Constantinople and of Venetian commercial ascendancy in the Levant. There was thus a link between the Hellenesque East and northern Italy.

The Emperor Frederick II was crowned in 1220. He was by birth and breeding an Italian. He was highly gifted, cultivated, wise and liberal in his opinions, a patron of the arts and of learning. Long before the Renaissance he revived Roman architectural design.¹ He was a man of outstanding ability and he might have united Italy and given her a great and noble culture: but his power was enormous, and it threatened both the Papacy and the cities. He inherited the kingdoms of Italy, Sicily, Sardinia, Germany and Burgundy, and by marriage he added the crown of Jerusalem. He was also Emperor. The Guelph party looked like being crushed by his power both in the north and south. He must be fought to the death. In 1227 he was excommunicated. The war began and it raged throughout Italy causing immeasurable misery and devastation. After Frederick's death in 1250 the war went on and in 1260 his bastard son Manfred was temporarily in a strong position after the battle of Montaperti. The Pope sought help from France and offered rewards. Charles of Anjou took command of the Guelphs and the Ghibellines were defeated; but Charles was now the greatest potentate in Italy. He was not able to maintain this position for the Popes cautiously turned against him, the Sicilians revolted (1282) and Sicily gave itself to Aragon. Naples remained French. The Emperors ceased for a while to interfere in Italy but Spain and France now had interests which were to cause great trouble.

In 1305 a French Pope, Clement V, was elected and he settled at Avignon. It was not until 1447 that the Papacy was firmly re-established by Nicholas V in Rome. The absence of the Pope was economically disastrous for Rome, and the city was a miserable relic of its former greatness—

Not only were the ancient monuments crumbling, but no breath of creative energy was stirring now among the ruins.²

Rome was a "depressed area," an anarchic slum, and wolves infested the low ground by the Tiber. In this city, in 1347, Rienzi, the son of an innkeeper, was acclaimed Tribune. He had given much study to Latin writers and had become fanatically devoted to the cause of restoring the pristine glory of Rome. Rienzi's revolution was short-lived. His administration was incompetent and his supporters fickle. In 1354 he was lynched by the mob and ended hanging upside down, naked and headless, from a balcony. He had failed grossly and foolishly; but he was a portent. He stood for the revival of ancient Rome and the unification of Italy. In this cause he was raised to supreme power without having to strike a blow for it. Failing, he was burned upon a fire of thistles and his ashes were scattered to the winds.

¹ See C. Shearer, *The Renaissance of Architecture in Southern Italy*, Cambridge, 1935.

² I. Origo, *Tribune of Rome, a Biography of Cola di Rienzi*, p. 11, London, 1938. This book gives an extremely vivid picture of Rome in the fourteenth century.

The constant strife between the Empire and Papacy, between cities, factions and individuals, begot a longing for peace and firm government at almost any price. As in the English Wars of the Roses, so in medieval Italy, civil war all but wiped out the old aristocracy. New families came to power and cities gladly accepted masters who were strong enough and ruthless enough to put an end to party strife and let the professional men, the artists, craftsmen and tradesmen get on quietly with their work. The Italians of the fourteenth century were tired of fighting. They entrusted their government to despots and their security to mercenary soldiers. The fierce idealism of Dante, the aristocrat (1265-1321), gave place to the jovial and earthy Boccaccio (1313-75). This new bourgeois society had many imperfections, but it had shaken off feudalism and it is probable that it offered better opportunities to an able man than he could have had anywhere else in the world at that time. It was a cynical, superstitious, cruel, dishonourable age, but it afforded a greater measure of freedom and opportunity than had been known before. To put it in another way, this society made good use of what talents it had while, in northern Europe, the farmer's boy would stay a farmer's boy, no matter how gifted he might be.

The most civilized of Italian cities in the fifteenth century was Florence and it was the main source of the Renaissance. A strong democratic movement in the fourteenth century deprived the nobility and the rich merchants of power; but this did not lead to the establishment of a democracy because the Medici family established themselves as political "bosses." Cosimo dei Medici (1389-1464) was the first of them to achieve clear pre-eminence, and to succeed—

in solving the strange problem of becoming absolute ruler of a republic keenly jealous of its liberty without holding any fixed office, without suppressing any previous form of government, and always preserving the appearance and demeanour of a private citizen.¹

He came to power on the death of his father, Giovanni dei Medici, in 1429, and had by then wide experience of the world and a great fortune. He was an extremely intelligent and capable business man, agreeable and kindly in manner, generous and fond of popularity and, though no great scholar himself, keenly interested in letters and the arts. He constructed villas and a great palace in Florence, founded libraries, welcomed Greek refugees from Constantinople and promoted a translation of the complete works of Plato and the foundation of the famous Platonic academy at Florence.

Cosimo was succeeded by his son, Piero the Gouty, who died in 1469. His son, Lorenzo the Magnificent, ruled Florence after him until 1492. Lorenzo was a man of powerful and versatile mind, a scholar, a poet of distinction, a lover of music, painting, sculpture and philosophy, a munificent and intelligent patron, a sensualist and a skilful and daring politician. He was quite ruthless and had scant respect for noble birth.² His immorality was scandalous even in that

¹ P. Villari, "Medici Family," in *Encyclopædia Britannica*, Vol. 18, Eleventh Edition.

² This was most unorthodox at a time when distinctions of class were more important than differences of nationality.



PLATE 12 THE EXTERIOR DECORATION OF ITALY

1. Church of the Holy Spirit, Naples, Italy (by Giovanni B. 1700).
2. Church of the Holy Spirit, Naples, Italy (by Giovanni B. 1700).
3. The Church of the Holy Spirit, Naples, Italy (by Giovanni B. 1700).
4. The Church of the Holy Spirit, Naples, Italy (by Giovanni B. 1700).



Fig. 100



Fig. 101

PLATE 20. FLORENCE, PALAZZO

1. The Palazzo Medici, Florence, 1498. This is a typical Renaissance palace of the early Renaissance—described in detail, but nothing is known of its original design.

(Author: unknown)

2. The Palazzo Vecchio, Florence, 1498. The ground volume is emphasized by the rusticated appearance. It is not as tall as the Palazzo Medici. Under the central part of the "facade" is the entrance.

(Author: unknown)

age. He promoted to high honour able men of the lowest condition. He was devotedly served and violently hated.

Nicholas V re-established the Papacy in Rome and revived the prosperity of the city.¹ He was a humanist—he had been librarian to the Medici in Florence—and he became a liberal patron and a great potentate. Italy was prosperous and fairly tranquil, until c. 1492. That was a momentous year. Columbus discovered America. Lorenzo dei Medici died. Granada in Spain was captured from the Moors, thus preparing the way for Spanish adventures abroad, and Roderigo Borgia became Pope (Alexander VI). The uneasy peace between the main powers of Italy was broken and soon French, Spaniards, Germans and Swiss were all fighting for their claims in Italy. The Pope, aided by his son, Cesare Borgia, set out upon a campaign of conquest, which, with the scandals of his private life, did much to shatter the already discredited moral authority of the Church. The Italian Renaissance was a secular and, to a large extent, pagan movement. The Popes from Nicholas V to Clement VII participated in it, and promoted to high office men who were more conspicuous for their classical scholarship and political acumen than for their piety.

In northern Europe men turned away from the Roman Church and founded new protestant churches. The attitude of the Italian humanists was cynical. Savonarola was rare in that age in risking and losing his life for an ideal. His movement for religious reform failed, and he was executed in 1498. The reaction, known as the Counter-Reformation, when it came was backed by the political power of Spain and the zeal of the Jesuits. The Society of Jesus was founded in 1539. In 1525, with the Spanish victory over the French at Pavia, Spanish influence was dominant in Italy. In 1527 Rome was sacked by a marauding army of Spanish and German troops and Pope Clement VII of the Medici family was imprisoned. Florence took the chance to throw off the despotic power of the Medici, but Clement came to terms with Charles V and the remnants of the army which had sacked Rome were turned upon his native city. Florence fell in 1530 and the Medici were restored. With Spanish support they later subdued Siena (1555) and became grand dukes of Tuscany.

The history of Italy is not comprehensible as the history of a country. Italy was, through the Middle Ages and the Renaissance, a collection of small states, to some extent united by a common culture and a common inheritance from ancient Rome, but politically dis-united and struggling with one another for survival. In this struggle each state stood little chance alone and sought to build up its strength by alliances with other states and by enlisting the support of greater powers, the Empire, the Papacy, France, Spain and even, on occasion, the Saracens. For centuries Italy was a battlefield and when war was not being waged in the open it continued underground with intrigue and murder.

The Renaissance, in the largest sense of the term, is the whole process of transition in Europe from the medieval to the modern order.²

¹ His two predecessors, Martin V (1417) and Eugenius IV (1431), had resided mainly at Florence.

² Richard C. Jebb, in *Cambridge Modern History*, Vol. 1, Chapter XVI.

It cannot be said to have a definite beginning and a definite end. Since it is a transition its climax must be like a watershed, not a high point of achievement but a point from which you see in one direction a tiny stream widening out into the great river of modern life and, if you look the other way, a stream flowing back into the old world; but when you climb a pass and reach the *col* which looks so clear and definite on a map you may find a morass of bog and heather. There is no knife-edge; and so it is with the Renaissance. Because the Renaissance is a transition we must try to see its architecture as a product of the process of change.

Medieval architecture was moulded by principles derived from the nature of building. It did of course reflect aspects of the character of medieval society as any art must express the feelings of the people by whom and to some extent for whom it is made; but the development of medieval design was in the hands of practising designers adapting their medium to the changing needs of society and improving their technique of expression. The forces which moulded architecture in the Renaissance were extraneous: they were not inherent in the nature of architecture but affected it from the outside.

We have seen that throughout the Middle Ages there was a tendency in Italy to look back to ancient Rome and derive inspiration from its architecture as well as from its political institutions; but Italian medieval architecture remained Gothic, mainly a vernacular influenced by important designs. This vernacular derived from Rome and was affected by knowledge of Roman architecture; but there was no attempt, except perhaps in some of the work done for Frederick II,¹ to copy Roman design. New methods of construction such as the pointed arch and the ribbed vault were freely used where they were useful, and the Italians developed a wonderful medieval architecture which was a worthy counterpart of Italian medieval painting. It was not until humanism, the great up-surging force which came with the revival of classical learning, had begun to affect men's minds that anything which could be called Renaissance architecture was built.

Ancient Latin writers used the word *humanitas* to denote the civilizing and refining influence of polite letters and of the liberal arts; as they also applied the epithet *humanus* to a character which had received that influence. The Italian scholars of the Renaissance, to whom the classical literature of antiquity was not merely a model, but a culture, and, indeed, a life, found it natural to employ a phrase not used by the ancients, and to speak of *litterae humanae* or *litterae humaniores*; meaning by the comparative, not "secular rather than theological," but "distinctively humane"; more so, that is, than other literature.²

Humanism was essentially an intellectual and cultural movement and perhaps the most important part of the humanist's ideal was the claim of liberty to think. This was fostered by study of the classics which revealed a world not bound to the narrow dogmas of medieval Christian scholarship; but, though this factor was ultimately of vast importance in giving rise to the development of modern religion,

¹ See C. Shearer, *op. cit.*

² Richard C. Jebb, in *Cambridge Modern History*.

philosophy and science, it should not be supposed that many Italians of the fifteenth century had the temerity to think for themselves—

Many of them had still the reverence for authority that medieval philosophers had had, but they substituted the authority of the ancients for that of the Church.¹

The Italian humanist age may be said to have opened with the work of the poet Petrarch (1304-74)—a contemporary of Rienzi. Petrarch was no slavish imitator of the classics and thought that modern work should resemble the ancient model not as a portrait is like the original, but as a child resembles its parent. This was the view of the early Renaissance architects, too, but the desire for authority and the writings of Vitruvius tended to make some of them imitate rather than emulate Roman architecture.

Architects were certainly not in the forefront of the new movement. Its main exponents were literary men who could read the classics. It became fashionable for wealthy noblemen and eminent churchmen to cultivate their minds and seek in the study of Latin writers a richer appreciation of life. These men were the patrons of artists and they taught the architects to follow classical models.

It was not hard to do this in Italy. The glorious past was known to all men. In this very land the Romans had lived and the remains of their buildings still existed. A people that could acclaim Rienzi Tribune of Rome could very easily be made to see Gothic art as a lingering stain of barbarism. Classical art was not foreign to the soil. Classical mythology belonged to the landscape of Italy. To think of nymphs and dryads, satyrs and muses, is as natural in Tuscany as it is to think of "the little people" in Donegal, or of Puck and the fairies in the Sussex Weald. It was a Christian land, but on the Apulian coast they still took a saint's statue down into the sea to fill it with fish as once they had taken Neptune, and throughout the land Ceres was worshipped in the guise of Mary as she still is in parts of Italy.

Moreover, as Professor Wittkower has pointed out,² no very clear distinction could at that time be made between Roman and Romanesque building. The twelfth-century baptistry at Florence, for example, was thought to be Roman.

The Renaissance did not begin suddenly nor did it end at a precise date. The great humanist literary movement was strongest in the fifteenth century. It was already a spent force in Italy by 1550 when the Counter-Reformation was well started. The climax of transition, the great moment when almost anything was possible, was in the fifteenth century, but the inspiration lasted well on into the sixteenth century in Italy and longer in northern Europe. It is difficult to say where it ended or what should be attributed to the Renaissance and what to the new movements which the Renaissance begot, what belongs to the Reformation and what to the new philosophies and to modern science, all of which were made possible by the Renaissance in Italy but were not part of it.

¹ Bertrand Russell, *History of Western Philosophy*, p. 516, London, 1946.

² R. Wittkower, *Architectural Principles in the Age of Humanism*, p. 5, London, 1950

When humanism struck the shackles of medieval dogmatism from men's minds it did not produce modern science—

The first effect of emancipation from the Church was not to make men think rationally, but to open their minds to every sort of antique nonsense.¹

One result was the growth of interest in astrology. Another was the development of a kindred system of architectural design.

Renaissance design has often been called "scientific" because it is the result of reasoning from principles,² but the principles were what the American Declaration of Independence called self-evident truths. It may well be doubted whether they were any more valid than the principles of astrology. In some cases they *were* the principles of astrology.

The basic idea of Renaissance design was that the ancients had discovered certain laws of proportion and harmony which would produce beautiful buildings. Beauty was assumed to be a property of things and this property gave pleasure to men. One way of applying the principle was to copy ancient buildings and so Roman ruins were measured, studied and reproduced. This limited design unbearably and a far better way was to discover the rules by which the ancients had designed. Of these, Vitruvius gave no more than a hint. He gave the "correct" proportions of the various parts of buildings to each other, but he did not explain the reason for these proportions. The humanist scholars of the Renaissance made good this deficiency by going back to the Greeks and particularly to Pythagoras. Pythagoras was both a mystic and a mathematician. He discerned the proportional relationship between the length of strings and the musical notes they produce. For example, if the ratio is one to two, the difference is an octave; if it is two to three, the difference is a fifth; if the relation is three to four the difference in pitch is a fourth. The Greek musical system was based upon these three consonances which can be expressed thus: 1 : 2 : 3 : 4. It was a general concept of Greek science that there was an order in the universe and that this order was mathematical. Plato believed that the universal was knowable in a way that the particular was not. Beautiful things pointed to an "absolute beauty." The musical relationships discovered by Pythagoras were thought to reveal the ultimate design of the world.³ From Plato's *Timaeus* came the idea that the elements of the material world were two sorts of right-angled triangles, a half-square and half an equilateral triangle. The atoms of the four elements were solids built up out of these triangles. Atoms of earth are cubes, of fire tetrahedra, of air octahedra and of water icosahedra. The elements are in proportion. Fire is to air as air is to

¹ Bertrand Russell, op. cit., p. 523.

² Cf. the conviction that architecture is a science, and that each part of the building, inside as well as outside, has to be integrated into one and the same system of mathematical ratios, which may be called the basic axiom of Renaissance architects. See R. Wittkower, op. cit., p. 89.

³ The idea was neatly expressed by the English poet, Alexander Pope, in the *Essay on Criticism*, 1711—

Those RULES of old discover'd not devis'd
Are Nature still but Nature methodiz'd.

water and as water is to earth. From the *Timaeus* also came the idea that the world is a sphere because *like* is fairer than *unlike* and only a sphere is the same all over. The world rotates because circular motion is the most perfect.

This was the "science" upon which Renaissance architectural theory was based. It was of course greatly elaborated to cope with the manifold problems of design; but this strange theory, based mainly upon an analogy with music, could not be made to fit all the problems of architecture. The main difficulty was that it was essentially a two-dimensional system. It was applied three-dimensionally to determine the "ideal" proportions of rooms, but even this involved complications, and a general three-dimensional application of the theory of proportion would have been so complicated as to render it quite unintelligible to most architects.

How far the theories were applied in practice we do not know. Books like Alberti's *De Re Aedificatoria* and the four books of Palladio tell us what the authors thought, but a man who writes about architecture is not a typical architect. I suspect that in practice rule-of-thumb methods like those given by Vitruvius were generally used. There is also evidence that scholars advised architects about the proportion of their buildings. A monk called Francesco Giorgi in 1534 prepared a memorandum advising the Doge of Venice about the design for the church of S. Francesco della Vigna. He suggested that the nave should be nine paces wide because that "is the square of three, the first and divine number." The length was to be twenty-seven to make a triple proportion "which makes a diapason and a diapente" (an octave and fifth). These proportions were derived from the harmonious proportions of the universe given by Plato in the *Timaeus*.¹ It appears that the architect, Jacopo Sansovino (and later Palladio), took Giorgi's advice.

Another idea that dominated the minds of architects in the Renaissance was that the proportions of the human body gave a clue to ideal proportions. The theory came from Vitruvius.² A well-built man with arms and legs extended was supposed to fit into a circle and a square, the centre of the circle being the man's navel. Vitruvius gives what he considers the ideal proportions of the various parts of the body and then goes on to claim that, if nature has so planned the body of a man that the members in their proportions correspond to his complete configuration, then the ancients seem to have had reason for observing an exact adjustment of the several members of a building to the whole. From the members of the human body, he claims, the Greeks derived the proportionate dimensions needed in building and these were grouped into the perfect number which is ten ($1 + 2 + 3 + 4$). He then goes on to discuss the rival claims of six as the perfect number. Oddly, it seems that this arbitrary definition of ideal human proportions based upon a particular type of male figure in front elevation does not appear to have been questioned seriously until the eighteenth century.

¹ Professor Wittkower gives a full translation of this report in *Architectural Principles in the Age of Humanism*, Appendix I.

² Vitruvius, Book III, Chapter I.

Vitruvius was clearly very much out of his depth in discussing the theory of proportion. He starts gallantly in Chapter I of Book III and then throws in his hand and advises his readers to follow the example of those who used the rules of proportion and symmetry. He appears to give the show away completely when he claims that the Doric order is based upon the proportions of a man, the Ionic upon the proportions of a woman and the Corinthian on the figure of a girl (*virginalis habet gracilitatis imitationem*). Having based the Doric order on the proportion of one to six (a man's foot to his height) the ancients advancing in the subtlety of their judgments (*subtilitateque indiciorum progressi*) apparently cheated and used a proportion of one to seven.¹

On this subject enough has now been said, I think, to give some indication of the way in which Renaissance proportions were determined, and, I think, to dispose of any idea that they were scientific in the modern sense of that word. Though they rest upon no surer foundation than alchemy and astrology, generations of architects have had faith in them. Like horoscopes, they have not yet died out. Many people will, no doubt, continue to believe that, no matter how absurd the reasoning behind the rules may be, the rules themselves have stood the test of experience. This may be so, but it is perhaps more likely that we have simply become accustomed to the results of the rules. This question will be discussed later because it was very much thought about in the eighteenth century (see p. 151 *et seq.*).

Renaissance proportion is founded upon two analogies: one with musical harmony *as then understood*; and the other with the relationship of the parts of the human body to the whole, irrespective of the fact that human bodies vary considerably in their proportions and that the functions of a human body are rather different from those of a building. Behind all the reasoning from these analogies, lies the concept that beauty resides in the object which is beautiful. There is also the assumption that architecture should be beautiful, that is, that it should please. The job of the artist was to make something which would please. This is a technical theory of art.² It is propounded in Plato's *Republic*, Aristotle's *Poetics* and Horace's *Ars Poetica*. The object of the artist is to stimulate a particular response (not to express something in himself or in his subject). The artist becomes primarily a craftsman and has to be an artist by stealth. There are two very serious dangers in this aesthetic. Firstly, if the object is to arouse pleasure by making something "beautiful," there is nothing logically unsound in believing that an artist's job is to please his patron, and he becomes a sort of lackey. The second danger is that the art degenerates into a cult or game in which the satisfaction of certain rules and requirements arouses the pleasure of discovering that the rules have been observed. Renaissance architecture was affected by both these dangers.

Having rather briefly surveyed the theory of Renaissance architecture we can now try to see how it worked out in practice. The theory, as I have stated it, was not accepted all at once at the beginning of the fifteenth century. The earliest Renaissance architects knew

¹ See Vitruvius, Book IV, Chapter I, 8. The influence of Vitruvius was enormous. He had the great advantage of having lived in the Augustan age and so for a long time he was above criticism.

² See R. G. Collingwood, *Principles of Art*, Oxford, 1935.

very little of it, and it was not fully applied until the sixteenth century.

Filippo Brunelleschi (1377-1446) is usually regarded as the first important Renaissance architect, but his greatest work, the dome of S. Maria del Fiore in Florence, is a Gothic design. This cathedral, one of the largest in the world, was begun in 1296 to the design of Master Arnolfo da Colle di Cambio. The dome was intended from the first and the whole plan leads up to it, but at the end of the fourteenth century it had not been built and nobody knew how to build it. The problem was solved by Brunelleschi using a system of ribs as the main structure, but supporting the ribs in the process of building by a corbelled infilling, laid in rings so that each ring is self-supporting and no centering is needed. The dome is pointed like the beehive tombs of Mycenae, the Persian domes and the trulli of Apulia (which may have inspired it).¹ Brunelleschi's dome was a structural *tour de force*. It was started in 1420 and finished in 1436. The lantern was finished in 1461 after his death. In the tiny Pazzi Chapel Brunelleschi was almost equally daring in his construction of the loggia, but here his decoration is definitely classical. The whole character of his work and of others associated with him is fresh and adventurous. It is an almost miraculous combination of the structural poetry of the Gothic and the elegance of classical design at its best. Throughout the fifteenth century the Renaissance in Florence and elsewhere (though Florence was the main centre of Renaissance architecture at this time) produced delightful architecture which, like Petrarch's poetry, was descended from ancient Rome but not copied from Roman designs. The taste for classical decoration and the simple tricks of classical planning were absorbed into the vernaculars of the various states of Italy so that Florentine, Milanese and Pavian Renaissance architecture, to take only three examples, was recognizably characteristic of each of those cities.

Most of the architects of the early Renaissance practised other arts as well. Brunelleschi, for example, was trained as a goldsmith and was a very good sculptor. The smallness of Italian cities tended to encourage artists to be masters of several trades. Probably many of them could not have earned a living in the practice of a single art and a man had to be prepared to paint a shield of arms, design an altar, carve a crucifix or put a partition in a bedroom. In northern France and England in the Middle Ages there was enough work to keep many masons busy all their lives on buildings. In Italy the tradition of mason-craft was rather different. As I have already mentioned, brick was a common material and the tradition inherited from Rome, of facing it with marble, was strong throughout Italy. The best masons tended to be workers in marble and they were more concerned with decorating than with constructing buildings. There was a close traditional link between marble masonry, mosaic and sculpture. The three crafts naturally merged in such façades as Orvieto Cathedral, S. Miniato at Florence and the baptistry at Pisa. There was nothing strange in the idea that a sculptor should design a church and there was no real reason why a painter should not, because the painter in those days was a skilled practical man. Especially if he worked in

¹ See Plate 14.

fresco—which is painting in wet plaster—he was very close to the building trade.

The people who designed buildings in the fifteenth century were versatile men who had been trained in the arts of sculpture and decorative masonry, goldsmithing or painting. They were primarily decorators: their interest was in pictures, sculpture and decoration, rather than in architectural construction. They were excellent craftsmen but they worked *with their own hands* as makers of decoration. When they designed buildings, their approach was rather different from that of the northern master masons.

The master artist had a shop where he worked and, if he was in a fairly big way of business, he would have a few assistants. In any case he would get, if he could, one or two apprentices and they would help him, doing the easy bits and the routine work according to their ability. In time the apprentices would qualify to practise on their own.

The Renaissance artist was above all things a craftsman delighting in the products of his own hand and brain. It was perhaps inevitable that such people when they designed buildings should be more interested in the immediate and personal activity of making a design than in the protracted and difficult business of getting it built. The art of architecture became very much the art of *designing* architecture.

The one Roman architect about whom anything was known, Vitruvius, appeared to be a quite different kind of architect from the medieval master mason. His position was rather more closely analogous to that of the modern official architect than that of the architect in private practice. His patron was Augustus, and the Renaissance prince or duke naturally followed such an imposing precedent by retaining designers as “architects.” Vitruvius had been a military engineer, and medieval defence had been closely linked with building, so that the Italian architects were expected to advise on matters of military engineering. Architecture thus offered a very attractive career for an ambitious man. A painter might be told to paint a crucifixion and spend months on a scaffolding in a church. Portraits offered more opportunity of contact with the great ones of the earth but it was a temporary and peculiarly difficult relationship. At the end of it all there was, with luck, a cash payment for services; but the architect was concerned in the expenditure of large sums of money for building work and was constantly in touch with his patron. As a designer of fortifications and ordnance he was in a position of trust and considerable influence. We may assume that many pretty gentlemen were kept waiting while dukes and cardinals consulted privately with their architects. The architect became a useful contriver and practical man about the house. In the corrupt, intriguing world of the Italian Renaissance, it is small wonder that all sorts of artists were only too glad to turn their hands to architecture if they could. In a world where by tradition there was no very rigid division between the arts which contributed to the decoration of buildings and no specific qualifications for being an architect, it is not surprising that they succeeded.

An architect had to be something of a courtier—not quite a gentleman, but a very superior sort of servant. To retain his position and



PLATE 25. ANCIENT NUMISMATICS

1. The Villa of the Papyri at Herculaneum, Capri, 1749. The plan is preserved.
(Ghent, 1749)
2. The Villa of the Capri at Capri, 1749. The plan is preserved.
(Ghent, 1749)

take advantage of its influence he had to dissociate himself from actual building and be a designer—which seemed quite as it should be. In fact the architect became more like the medieval clerk of works but, in the intellectual climate of the Italian Renaissance, he remained an artist. It was thus that a new kind of architect came into being, and the designing of buildings became separate from the construction of buildings.

The career of Leone Battista Alberti (1404–72) is important. He was a wealthy and educated man, an extremely accomplished dilettante. He wrote books on painting, on sculpture and on architecture (*De Re Aedificatoria* c. 1450), and he practised as an architect. He considerably enhanced the prestige of architecture as a profession and propagated classical theories of design. We do not know how influential he was in his own day and there is some danger of overestimating the importance of his book, just as the men of the Renaissance overestimated the importance of Vitruvius's *De Architectura*. Architects have seldom been bookish people and have generally been more concerned with day-to-day problems than with theories. Books were costly and rare in the fifteenth century, and it is probable that Alberti's influence was exerted through those patrons who could read it (it was written not in Italian but pedantically in Latin) and not directly upon architects. We have no means of knowing what was the current gossip among architects in the workshop and the tavern. Probably there was a lot of talk about the ancients and about queer rules of proportion—much misinformation and a great deal of pretended knowledge and boasting.

What is certain is that Alberti in his work deliberately imitated Roman design and that by the end of the century it was generally customary to design in a classical style and in theory, at least, according to Vitruvian rules of proportion. The rules lent themselves very easily to what we should now call "blinding with science." They were arbitrary and confused; and ingenious architects no doubt used them on occasion to convince their patrons that what the architect himself wanted to do was "right." The principle that there was a right and a wrong in design was a new and very formidable one.

An architect whose work exemplifies the change from organic to stylistic design is Donato Lazzare Bramante (1444–1514). His early work in Milan is in character with the vernacular of that district, but his later work in Rome is in a pure classical style.

The kind of architecture which had been advocated and practised by Alberti is based closely upon the rules of proportion and is an austere and academic version of Roman design. It is simple in appearance and restrained to the point of dullness. It is called the style of the High Renaissance and it lasted until c. 1570, by which time it was outmoded in Italy. It may be said to have begun with Alberti and ended with Palladio (1518–80) who wrote a book which formulated its principles. The book was really out of date when it was written, but it became the means of transmitting classical principles to England.

Though High Renaissance architecture was academic and rooted in the past, it was not unproductive of great buildings or of ideas which were important in the development of architecture.

It was an anarchic and perilous age and, just as the Greeks

responded to political disorder and a wild, unfriendly landscape with precise and ordered buildings, so the Italians of the Cinquecento expressed in architecture their conception of an ideal order while they saw their country rent by contending powers.

The discipline of High Renaissance design was intellectual. It was an expression of intellectual ideas, and certainly not of feelings or aspirations. The appeal of High Renaissance architecture was to the trained eye which could perceive the formal logic and proportional qualities of the design. The aesthetic of High Renaissance design was technical¹ and hedonistic. It was intended that, by means of design according to the rules, beautiful buildings should be created. Beauty as an actual quality of the buildings would, it was thought, result from sound design, and so, presumably, if a man failed to see beauty in them the fault was with him. The calculated effect of beauty was to arouse pleasure in those who were capable of appreciating it.

We have seen that the conditions of practice tended to separate building and designing and to make the architect feel that the actual designing was the important thing, and the construction of a building a tiresome necessity. Not that any architect did not want his buildings built—very much to the contrary—but the building was a worrying and difficult business after the artistic work was done. This love of design on paper—of what is sometimes called paper architecture—is reflected in innumerable designs for buildings which were never intended to be built, and in masterly designs for buildings in pictures.

The intellectual nature of High Renaissance design, its formulaic character, the interest in design on paper and the tendency for architecture to become an academic discipline and subject of academic discussion gave rise to some very important changes, to which we have now become so accustomed that their strangeness is not apparent until they are thought of historically. A plan is seen as a pattern on paper. This pattern as a *pattern* came to be regarded as architecturally important, whether it was possible to appreciate the pattern as seen in the finished building or not. Symmetry can undoubtedly be appreciated *inside* a building as the designers of Gothic cathedrals well knew, but Renaissance symmetry was sometimes such that it could not possibly be seen from any point of view in or outside the completed building.

An even more strange development was the idea of a façade which could be seen to be purely a façade. Such façades are now common all over the world but they were, I think, developed as an element of designed architecture in the High Renaissance. I do not think there was any Greek or Roman precedent for them. The Romans, it is true, covered their buildings with a mask of decoration and elaborated the main façades; but it was with intent to deceive, and make people think the whole building was rich, and such decoration went as far round corners and along the sides as could be seen. Many Renaissance façades were designed as fronts, and there was no attempt to suggest that the building was the same round the corners. A building might have an elaborate marble front carefully designed and proportioned in elevation, but that elevation could never be seen as such—it is impossible to see a building in elevation—and seen in perspective not only were all

¹ See my *Art and the Nature of Architecture*, Pitman, London, 1952.

the proportions altered in appearance to the eye, but the façade was seen to be nothing but a skin on the front of the building, the sides being plain rough brickwork.

Another result of the High Renaissance was the development of a new kind of structural logic. In Gothic architecture, structure generally expressed what it was and the tendency was to make the structure as fine as possible and to eliminate waste. The fact that a structure worked, that it stood up, was considered sufficient evidence that it was sound. Not so in the Renaissance: structure had to satisfy the eye, and not the eye of the technician but the eye of the amateur. The structure was expressed in pattern. This affected design in many ways, but two examples will be sufficient to show how it worked. If a column stood in front of a wall—as in a loggia—and there was a beam from the column back to the wall, then it was considered that the wall must have a pilaster, called a *respond*, to show that the wall below the beam was acting as a support, to express a column in the wall. There was of course no structural need for such a *respond*. This idea of a *respond* was developed along with the idea of symmetry to such an extent that it completely dominated later Renaissance planning and to this day many architects think instinctively in terms of *responds*. This confused thinking about the pilaster as a decorative expression of a structural reality is due mainly to the fact that the architects of the Italian Renaissance based their principles upon Roman design, in which the column was a survival decorating an architecture based mainly upon the arch. Had they taken the trouble to study the important Greek buildings in Italy and Sicily, they would have found an architecture in which the column and lintel were structural, and structural walls (as in the cella walls of the temples at Paestum) were allowed to carry loads without there being *responds* to the columns in front of them.¹

The second example is to be seen in the façades of Alberti's Rucellai Palace and Bramante's (?) Cancelleria Palace, both of which are constructed with load-bearing walls pierced by arched windows. In both cases the façade is divided by string courses expressing floor-levels and by pilasters. This is not an expression of *real* construction at all. It is a decorative expression of a misunderstanding of the structure.²

Construction was really of very little interest to the designers of the High Renaissance. Proportion was what really mattered. So it is not surprising that the standard of construction declined. Only simple forms were used, and the ratio of the area of walls to the area of space enclosed increased enormously. A comparison of the plan of St. Peter's, Rome, with the plan of any of the Gothic cathedrals shows how very much more clumsy architectural construction became. The pointed arch and ribbed vault were abandoned altogether in favour of the cruder methods which they had once superseded. The development of construction almost ceased. Entirely new standards of design came into being. Architects accepted the discipline and limitations of

¹ According to principles of planning which have been taught to many generations of architects the Parthenon "is wrong" because the doric columns have no *responds* on the wall behind them.

² Oddly enough, this kind of design came true in the twentieth century, when classical façades were hung on steel framing and the pilasters did in a sense "express" the structural steel behind them.

a simple structural technique as well as a very restricted range of decorative motifs. All architecture was to be variations on a few well-known themes.

From one point of view this was undoubtedly a great loss and that is how most modern architects would be likely to regard it; but until very recently it was considered to be a gain and many people would still contend that the advantages far outweighed the loss. It is doubtful if the two points of view can be reconciled. They reflect two entirely different ideas of what architectural design is. Our present purpose is not to applaud or to condemn, but to try to see what happened and why the people of the Renaissance approved of it. The main reason was that they believed that the rules of classical design as deduced from Plato and Vitruvius were valid, in contrast to the Gothic structural aesthetic which, on the contrary, must be invalid. Once structure ceased to be the main factor in design the urge to develop it went too. The brains of the architectural profession were turned to problems of proportion and style. Whether the rules were sound or, as they would now appear, mere moonshine does not matter nearly so much as the undoubted fact that they were believed in. As a result of this belief most buildings erected in Europe after the acceptance of Renaissance ideas until late in the eighteenth century had similar proportions, and decoration which might vary a good deal in character was all clearly of the same kind—derived from Hellenistic design through Rome. The result was impressive, to say the least. Not less than ten generations of architects in Italy and six or seven in the other countries of western Europe worked over the same problems in much the same way. It is small wonder that in the eighteenth century the architecture of France, Britain, Spain and America had reached a high standard of refinement within its chosen limits.

So far I have dealt mainly with theories about Renaissance architecture, with principles of design; but architecture is an art and, though it was not intended by Renaissance architects to be a kind of language of expression (Renaissance artists did not think of art in that way), yet it was clearly expressive in the way that all great art is, whether the theorists of the day thought it should be or not.

One consequence of humanism was a reversal of the view held, at least as an ideal in the Middle Ages, that this world is a vale of tears and a preparation for a better life in the next world. During the Renaissance, this life on earth and the enjoyment of it became of very great importance. Humility was looked upon with disdain or pity, and pride became, if not a virtue, at least a very obvious characteristic of most successful people, both lay and clerical. This new sense of self-importance in particular, and of the importance of man in general, was reflected in the arts.¹ It has often been observed that, in the religious paintings of the Renaissance, saints and *madonnas* lost their ethereal qualities and became very human—so much so that one is entitled to

¹ Cf. Hamlet's speech—

"What a piece of work is man! How noble in reason! How infinite in faculty! In form and moving how express and admirable! In action how like an angel! In apprehension how like a god! The beauty of the world! The paragon of animals!"

wonder whether the artists were as much interested in the religious significance of their pictures as they were in the actual people they were painting. The effect on architecture was no less great, and what architects had to convey was an impression of importance. Whether it was a house, a palace or a church, it had to impress by its grandeur as well as by its qualities of proportion; and, by implication, buildings expressed the importance of the architects who designed them. The tendency which medieval buildings had to merge together did not suit the Renaissance designer. Each building was a unit, clearly defined, and it showed the most dignified possible front to the world.¹

Humanism was a secular movement and to some extent anti-Christian and materialistic. For heaven, the humanists were inclined to substitute fame. They revered the ancients and hoped their own names might live in the memory of posterity and be revered, as they themselves revered Plato, Horace, Cicero and Vitruvius. One consequence of this was that artists took care that the world knew of their work. They boasted of it, and it became customary for people to remember and record the names of architects. The personal fame of architects came to be an important thing and this had some influence upon the way architects practised. Incidentally, they became very jealous of their personal reputation and this has made the correct attribution of some Renaissance buildings difficult.

From the Renaissance onwards architecture was influenced not so much by particular buildings as by the work of famous men. Undoubtedly men had been influential in the Middle Ages, but not in quite the same way. In the Renaissance a famous architect was imitated *because he was famous*, because his work was fashionable. The Renaissance patron (the counterpart of the modern client) was usually a potentate, a nobleman or an important ecclesiastic; a count or a cardinal—it mattered little which, for both lived in state with all the elaborate apparatus of courtly life. Manners were formal, flattery was universal, dishonesty and insincerity were taken for granted. The patron was, or at least thought he was, an educated man, and he claimed a right to share in the design of the building he was promoting. The architect's life must at times have been a far from happy one.

The little courts of Italy were modelled on the greater ones of the Emperor and, later, on the French court. With innumerable princelings—ambitious, arrogant and secretly conscious of their insecurity and pettiness—etiquette was supremely important. A king or emperor might possibly please himself, but the Italian nobility had to keep up appearances. Architecture was the background of life and it became inevitably an architecture of etiquette, an architecture of what was done and what was not done, a polite and mannered architecture. It was as an architecture of gentility that it spread to the courts of Europe in the sixteenth and seventeenth centuries; but in Italy Renaissance architecture took on a strange new character. It is called Baroque.

We have seen that humanism was essentially an intellectual movement. It was also materialistic. It was nurtured on the Greek and

¹ It was only later, and in a sense as an architectural expedient, that small houses were grouped into single architectural compositions, as in Bath and Paris.



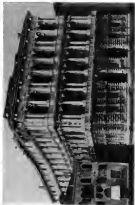
1. S. Maria della Salute, Venice, view from the water (after and restoration by E. Winkler)



2. S. Maria della Salute, Venice, view from the water (after and restoration by E. Winkler)

PLATE 16. BATHS OF THE BATHS

1. S. Maria della Salute, Venice, view from the water (after and restoration by E. Winkler)
2. S. Maria della Salute, Venice, view from the water (after and restoration by E. Winkler)



From left. The Pantheon in London, 1850.
Grand, improved structure.
(London: Longman)

Roman classics which for a time superseded the Christian ethic; but they were no more capable of sustaining a modern civilization and culture than they had been able to sustain the ancient world. Moreover, humanism was limited in its appeal to a small section of society, and the vast majority of people clung to the values of Christianity. Humanism undoubtedly enriched the Renaissance culture and stimulated thought; but what the centuries after the fall of Rome had achieved was grossly belittled by the Renaissance humanists and in rejecting it they were losing too much that was good. Besides, very few humanists totally rejected Christianity and most of them at least made their peace with the Church when they felt that death was near, just as the practical Athenians were wont to sacrifice a pig at Eleusis before they died.¹

The Renaissance in Italy is notoriously associated with moral laxity, with complete unscrupulousness and cynicism. It would be a mistake to assume that all was well in the Middle Ages: it certainly was not, but there were moral standards in the Middle Ages. In the Renaissance, for a significant and important section of society at least, there were not; but Renaissance architecture presents us with one of those dazzling paradoxes which make the history of mankind so fascinating. Men who, in their personal behaviour and their conduct of affairs, seemed to admit no law but the law of the jungle believed that architectural design was governed by rules of proportion. These rules they upheld with all the fervour of ardent moralists. Rejecting and even ridiculing Christian morality as a guide to conduct, they bound architectural design to a strict law of right and wrong.

No other art except perhaps music was bound so strictly as Alberti and his followers had bound architecture to the laws of antique science. To men who practised many arts and particularly to a man of such stature as Michelangelo Buonarroti (1475-1564) the yoke of Vitruvius was unbearable. Besides, when every other law was flouted why should the laws of art alone be sacred?

It was in ethics that humanism was weakest. Its materialism undermined the validity of all the laws it established except the law of expediency. So it came about that the Christian ethic was reasserted by the Reformation in the north of Europe, and then by the Counter-Reformation in the south; but, with the revival of moral standards in their proper sphere, in life instead of art, architecture was freed from the laws of the ancients. The art of architecture came alive again and became expressive, not of ideas, but of feelings.

Society was sick. The dream of a united Italy had faded and the country was helpless and disunited under the military domination of foreign powers. In the north of Europe devout men, appalled by the humanist moral collapse in Italy, had broken away from the Roman Catholic Church. The Counter-Reformation, foreshadowed by Savonarola, was backed by the might of a Spain not long emerged from its struggle against Islam, retaining the ruthless intolerance born of that bitter struggle, and animated by a crusading zeal. Christian Europe was split, and was to suffer long and pitiful years of religious

¹ Cf. Aristophanes' *Peace*. Trygaios says: "Then lend me three drachmas to buy a pig—I must get initiated before I die." Quoted from W. K. C. Guthrie, *op. cit.*

war and persecution. Against this gloomy background strutted the petty tyrants of Italy, politically subordinate and morally impotent. The Renaissance as a great creative force in Italian life was spent.

Vitruvian architecture had lasted long enough to kill the organic architecture of the Middle Ages and make its resuscitation impossible, even if anyone had wanted to bring it to life, which they certainly did not. With the collapse of the Vitruvian system there was nothing left: there were *no* standards of design. The decay was gradual and, right up to the end of the sixteenth century, some designers clung to the old laws of proportion and propriety. There were men who saw architecture as a great art, as a medium of expression. The greatest of these was Michelangelo, an artist of tremendous power who strained every medium to its limits and beyond to express, not the innocent wonder at the beauty of the world as seen afresh by the early humanists, still less the academic platitudes of the High Renaissance architects, but a deep, sincere and troubled feeling for the strange and wonderful nature of men, and a vision of his own.

Trying to explain the qualities and meaning of the work of a great artist is among the more futile forms of endeavour. A work of art is a statement of what the artist wanted to say in the terms which seemed best to him. It can seldom be translated. Whatever criticisms may be made of Michelangelo (and he had many faults) he was none the less a very great artist. His faults are those of his age writ large—a morbid striving for grandeur, a lack of balance and a tendency to over-emphasize. We cannot say Michelangelo made the Baroque. To blame him for Baroque architecture would be silly; but it is in his work that we first see clearly the characteristics of Baroque architecture—the love of grandeur, the forcing of scale, the use of all the paraphernalia of classical architecture, expressively to satisfy the artist, intentionally to excite the beholder, in defiance of the laws of classical design.

It has become customary in recent years to speak of a transition from the High Renaissance to the Baroque through a period called “Mannerist” in the mid-sixteenth century. In enumerating styles of design, which one is entitled to do in the Renaissance period though not in some others, this is a useful distinction, though it is really more applicable to architectural decoration than to architecture as a whole. The essential character of Baroque is apparent in Mannerist work, and especially in the buildings of Michelangelo.

St. Peter's in Rome is a disappointing building largely because of the intervention of too many people, some of whom were rather incompetent. It is a grand conception. It was to have been dominated by the great dome and would have been extremely impressive; but the west end was extended and given a pretentious façade which hides the dome, and the interior was decorated with more splendour than taste. It can hardly be said to represent Michelangelo. He would have above all things have given it unity, which is what it lacks. The conception, or, should we say, the assemblage of different but related though uncoordinated conceptions, is Baroque. This greatest of Christian churches was conceived in terms of secular pomp and grandeur. Nearly all Baroque churches were intended to impress.

They were a product more of the power of the Counter-Reformation than of the ideals which inspired it.

There was also a deliberately vulgar element in the Baroque, both in church and secular architecture. It was intended to impress the public, and, like the architecture of some modern cinemas, it was not ashamed to stoop to conquer. Much of it was quite as tawdry as the fairground roundabouts with their gilded organs, bright lights and strident music. The design of these is in fact a product of the Baroque.

The effect of Baroque architecture upon the other visual arts was very great. Painting and sculpture were in great demand to add to the impressive effect, and they were debauched as a result. They were, of course, themselves expressive of the turmoil and neurosis of the age, but the demand for acres of not too expensive but costly-seeming architectural decoration undoubtedly had some effect upon them.

The Baroque, for all its liveliness and vigour, its movement and careless abandon, its involved geometrical relationships, its dramatic effects, its richness and impressiveness, was a sterile movement; or at least it could bring forth nothing but monstrosities. The fatal error of the humanists in separating design and structure, and the failure of Italy to build a new culture and a new polity on sound foundations led inevitably to the Baroque; and the Baroque spread far and wide to Spain and France and to all the courts of Germany and Austria, as froth upon the tide of enthusiasm inspired by the Italian Renaissance. It is a fascinating phase in the history of architecture. One likes or dislikes the results according to one's temperament; but at least there is this to be said for Baroque architecture. Though it is sometimes hectic, hysterical and strident, sometimes coarse and vulgar and often quite ridiculously pompous, it is never just dull.

It is perhaps worth remembering that throughout the sixteenth and seventeenth centuries the Italian vernacular persisted and quietly absorbed some simple ideas about proportion and detail from the designed architecture of palaces and churches. Naturally it never occurred to anyone that the houses of important people or churches should be built in this unpretentious way. Build a palace for a count in the style of a country cottage! It would have been too absurd—in the days of the Renaissance.

One final word in what has had to be a very brief introductory survey of Baroque art—whatever may be thought of the movement as a whole, no matter how much it may be condemned, it must be recognized that some of the artists who worked under its influence were very great men who produced work of enduring value.

THE SPREAD OF ITALIAN INFLUENCE

WHEN the Romans conquered the Hellenistic world in the second century B.C. they took over its architectural traditions and made from them an imperial style which was an outward and visible symbol of Roman imperial power, of the unity of the Roman world and of the *Pax Romana*.

When in the sixteenth century the little states of Italy came under the domination of Charles V, Roman Emperor, King of Spain and Archduke of Austria, the conqueror again learned architecture from the vanquished; but it was not a united and peaceful world which emerged in the sixteenth century. It was a world split by bitter religious controversy, a world of nation states governed by autocrats, a Europe torn and divided and much like Italy on a larger scale, with kings, archdukes and electors where Italy had had dukes and counts. In England, France and Spain, there were strong monarchies which had been established after long years of trouble and humiliation, the Wars of the Roses in England, the Hundred Years War in France, and the long struggle to evict the Moors from Spain. Since the early Middle Ages something had been learned about the art of kingship, but little about its obligations. The kings of the sixteenth century were more skilful than the Merovingians in the sixth, but countries were still the properties of their rulers, and the progeny of ruthless adventurers were supposed to be confirmed in their inheritance by divine sanction. The accident of inheritance had created the strongest power, that of Charles V of Spain. The personal ambition of princes was a dominant force supported by lesser nobles whose own ambitions were linked with those of their sovereigns. War, intrigues, murder, judicious alliances and the bartering of children in marriage for political ends were the instruments of aggrandisement. *Prestige* became of extreme importance for monarchs who, though they were autocrats, really depended upon being able to hold the confidence of powerful subjects. For noblemen and for influential merchants, worldly churchmen and political adventurers, prestige was vital because they needed to convince their superiors of their importance.

We have seen that in the fifteenth century Gothic architecture was being developed in secular buildings and it was quite capable of coping with the problems of more comfortable and luxurious living; but the nature of Gothic architecture was such that a new domestic architecture had to evolve, as ecclesiastical and castle architecture had evolved, from the necessities of construction and the programme. The only elaborate and *impressive* architecture known to the Middle Ages was either ecclesiastical or closely derived from ecclesiastical architecture, as in the fine municipal buildings of Belgium and Holland. This kind of architecture was not what the kings and nobility of Europe wanted in the sixteenth century. For one thing it was slow to build and costly,

and it had a religious flavour. Their need was for something very impressive and definitely secular, at not too great a cost and with a promise of quick results.

The courts of Europe were the focal points of social life, the centres of government and markets of opportunity. Taste was determined and fashions were cultivated at court. From the court they were disseminated outwards through the country and downwards through society until they impinged upon the humble Gothic vernacular of the cottage and the village street.

At the end of the fifteenth century Italy had become a European battlefield and the gentlemen who came there to fight from most of the countries of western Europe were very much impressed by the civilized way of life they found there. They found themselves somewhat rugged in manners compared with the cultivated Italians, and they were astonished at the convenience and luxury of the town houses of Italian gentlemen after the smoky gloom and dampness of their own great castles. They were also affected to some extent by the intellectual life of Italy and dazzled by the revelation of a new world of ideas. When they went home they boasted, as soldiers will, of what they had seen and done in the war. They built themselves houses with a few classical features and, since the King of France and the Emperor Charles V could count themselves among the old campaigners, the practice was not discouraged.

Italian Renaissance architecture was in fact just what the kings and courtiers of the rest of Europe wanted. It was impressive, it was secular, it was comfortable and not too expensive and it conveyed the flattering suggestion that the man who promoted it was abreast of modern ideas, was a man of the new Renaissance world, a humanist and not a survival from the Dark Ages. In short, it became fashionable; throughout Europe from the Atlantic to the western boundary of the Turkish empire, architecture changed. The change came about through the courts in secular architecture, especially in the palaces of kings and great noblemen. Church-architecture was quickly affected and rather later the vernacular absorbed decorative features and Renaissance proportions. In each country three main stages are discernible. First Gothic architecture is built with crude Renaissance detail. The next stage is the assertion of a "correct" Italian style, frequently with the aid of imported Italian architects. After that comes the Baroque which was peculiarly suited to the character of the courts of Europe after c. 1650; but though a few Italian buildings were built in most countries it was not Italian architecture which spread: it was Italian ideas. Each country, and districts within each country, produced Renaissance architecture, which is characteristic. This was due partly to differences of climate (the low-pitched Italian roof and small windows were not suitable farther north); partly to differences of material; partly to the influence of Gothic design; and partly to the differences in character of people as expressed through artists in architecture. A small proportion of Renaissance architecture was almost purely formal and academic in its inspiration; but in most Renaissance buildings the academic discipline has not been so powerful as to inhibit the personal and expressive qualities of architecture. Despite the

curiousness of the principles of classical design, as understood in the sixteenth century and later, they were not without good effect. It was not that the rules were right (they were, as we have seen, quite silly) but they did make people think about proportion and refinement of detail. They did form a sort of scaffolding which made possible in the eighteenth century the building of an imposing edifice of good taste. There came into being an architecture of polite manners.

It would be quite wrong to suppose that manners were not polite in the Middle Ages, which after all invented chivalry. It would be equally wrong to confuse the eighteenth-century conception of manners with natural courtesy. Society was stratified and good manners consisted to a great extent in respect for the stratum above and proper pride in relation to the strata below. In the upper layers the grossest arrogance was sanctioned. In the lower layers "proper respect" was essential. Architecture came to reflect this social pattern. The great house, arrogant, assertive, to all appearances secure and confident; the cottages, the counterpart of the decent respectful, unpretentious tenants. The merchant and the squire, the parson and the abbé, knew their places between these extremes.

The restraint of design within narrow limits of decoration and proportion derived from the ancient world (which could have little meaning except for the upper class) made all architecture similar. For a long time there was no modern architecture which did not conform to the rules, and people became used to them. Thus architecture acquired a new unity and this was a rather comforting and flattering expression of the social order as seen by those who liked it—and a great many people did.

The love which many people have for Renaissance design is not unmixed with regret and nostalgia for the passing of the kind of society which created it. Thus it is still difficult to judge Renaissance architecture, and few could honestly claim to be dispassionate one way or the other, for or against. I think it is better not to be dispassionate. To understand any work of art you must be receptive, you must be willing to receive what it expresses. The difficulty of understanding medieval architecture is that of feeling as medieval people felt. The difficulty of understanding Renaissance architecture is that the transition is not yet complete. They understand it best who are most in sympathy with it. People who are deeply imbued with the spirit of change away from the old order have to make an effort to overcome their inevitable prejudice against the architecture which typifies it. It is an effort which is worth making. It is less easy for an enthusiastic and progressive modern mind to enjoy seventeenth-century architecture than it is to appreciate the architecture of ancient Greece, Egypt, China or Peru. To appreciate Renaissance architecture as art and historically, we must try to correct our own bias—whichever way it may be.

From Italy the Renaissance spread quickly to Spain, where there was Gothic architecture influenced by a strong Islamic strain and exemplifying the Islamic love of intricate detail. At first classical detail was introduced into Gothic architecture and it did not fit the proportion or the structure of Gothic design. The main interest was

in detail rather than the structure as a whole, and the tendency was to abandon structural forms which did not lend themselves to classical detail. Then came an academic phase under the influence of the High Renaissance in Italy and, later, the Baroque. Modern Spain had been born with the union of the little states of Aragon and Castile by the marriage of Ferdinand of Aragon with Isabella of Castile in 1479, and in 1492 the Moors had been driven out of Granada. Spanish intervention in Italy was decisive in the early sixteenth century and the High Renaissance was quickly planted in Spain. So we find the hybrid Gothic-Renaissance architecture and an academic Vitruvian style contemporaneously. Both were overwhelmed by the Baroque movement late in the sixteenth century, but enough of the vigorous, chaotic and elaborate hybrid survived the short academic period to be caught up in the Baroque. It was mainly the Baroque which went to the Spanish colonies in America and formed the basis of their tradition both in designed architecture and the vernacular. Spanish Baroque can reasonably be regarded as the least restrained and most licentious architecture ever created.¹

In eastern Europe, Greece and the Balkan countries were under Turkish rule, Vienna was on the frontier of Christendom and Russia preserved its own version of the Hellenesque tradition. Behind Austria from the Italian Alps through modern Germany to Poland and the Baltic Sea there was a great number of small states, the residue of the Empire from the clash between the House of Hohenstaufen and the Papacy. Only in the south-east corner had the Emperors maintained a fairly large political unit, Austria, which was ruled from 1486 to 1519 by the Hapsburg, Emperor Maximilian, who acquired the Netherlands by marriage. Maximilian's son, Philip, married Juana, the elder daughter of Ferdinand and Isabella, and the son of this marriage was Charles V, who thus inherited Spain, Austria and the Netherlands. Juana's sister, Catherine, married Henry VIII of England and her daughter, Mary Tudor, married Juana's grandson, Philip II of Spain. This illustrates the way in which the members of the aristocracy of Europe were related. Europe was a family affair and the unfortunate daughters of princes were likely to be posted anywhere from the Atlantic to the Danube, as the prudence of ambitious fathers might dictate. Often they took with them a love of the architecture of their own country and consoled themselves in lonely alien places by imitating it. The German states looked to the West. Beyond was Russia—backward, separated by a strange language, and belonging to the Greek church; and, south of Russia, the Turks. None of the German states was big enough to develop architecture very much, but each little court learned Renaissance architecture from Italy and from France. Sometimes the results were academically correct. More often local tradition was strong and so throughout Germany an ornate architecture emerged which preserved a good deal of the medieval spirit as well as something of the Hellenesque, and was not unaffected by the opportunity which a multiplicity of small states gave for the occasional emergence of influential eccentrics. In the eighteenth century the Renaissance spread to Russia.

¹ A good case could also be made for *Art Nouveau*.

The principal legatee of the Italian Renaissance was France and, after France, England. In both countries Renaissance architecture was significantly developed in accordance with its original principles and in turn gave rise to new movements. In the seventeenth century the centre of influence shifted from Italy back to where it had been before, between the mountains of Auvergne and the Pennines. From there, Renaissance architecture spread all over the earth.

To attempt to trace the results of the classical way of design in all the countries where it was adopted is not possible here, but in general it may be said that two kinds of architecture resulted. The first was a monumental architecture of the kind exemplified in the Capitol at Washington, an architecture more magnificent and impressive than anything the Romans ever built, and remarkably consistent in character all over the world wherever the desire existed for civic and government buildings of an imposing kind. The second was a vernacular which varied widely as a result of local materials, climate and cultural traditions. Thus in South Africa Dutch influence produced a vernacular of great charm and distinction; and in the English colonies in North America a small miracle took place, for here classical architecture was translated back into timber, the material in which it had originally evolved, to produce a lively vernacular¹ which is wholly delightful.

Baroque architecture had been created in Italy after the growth of Spanish power there and Spain was the principal heir to the Italian Baroque. From Spain and Portugal the Baroque spread to the Spanish and Portuguese colonies, and in particular to South and Central America, where it was blended with indigenous traditions to produce a most exciting sort of architecture. The Baroque was also very influential in central Europe where it impinged upon the still vital Hellenesque tradition and produced architecture of great interest.

¹ See Plates 67 and 68

THE RENAISSANCE IN FRANCE

RENAISSANCE ideas spread early into France because there was much travelling between Italy and France. The Italian military adventures of the French kings, starting with the expedition of Charles VIII to Naples in 1495, brought the French nobility into close contact with the Italian way of life. They admired Italian fashions and tried to introduce them at home. The development of Renaissance architecture in France is dominated by the activities of the central government, of the kings of France. Its history clearly reflects the glittering pageant which, as we now see it, led brilliantly, wantonly and tragically to the Revolution in 1789. From early in the sixteenth century to the end of the eighteenth century, Renaissance architecture was fostered by royalty and became a natural accompaniment to court life.

In the sixteenth century France had become strong and prosperous. Its architecture, in which a certain love of ostentation and richness, characteristic of the age, was apparent, was Gothic. The country was well provided with churches and monasteries, but these needed maintenance and occasional improvements. Unlike England, France remained Catholic and the tradition of mason-craft for the Church was unbroken.¹ Thus the structural conceptions of the Gothic age were carried on into the Renaissance for long enough to affect it considerably. In church design, the Renaissance had the effect first of translating each individual architectural member of a Gothic church into a classical form before affecting the design of the church as a whole.

In Italy there were strong sentimental reasons for reviving Roman design and sufficient of the Roman character had survived in the vernacular and even in Gothic buildings to make the change an easy one; but in France the Gothic tradition was very strong and there was every reason for regarding Gothic architecture as—to borrow a term from the Renaissance vocabulary—a national style. If this much was conceded, if the idea of style was once accepted, the victory of the Renaissance style was assured, because Renaissance architecture had a grammar, a set of rules. You could *learn* Renaissance architecture. The traditional and organic system was bound to bend for a time at least to the formal and beguiling logic of the humanists.

The struggle was a long one, and not less so because the Gothic master craftsman found his livelihood increasingly threatened by the employment of foreign artists and young men with ideas and a flair for court life who had not served their time under a master. The master tradesman with his jealously guarded privileges and traditions, his practical lore, his loyalty to his union (as we should now call it) was opposed to the free artist-designer who often had but little practical knowledge of building, but had vision and ideas, freshness and vivacity,

¹ See p. 164 for the effect of the dissolution of the English monasteries.

and a breadth of knowledge and culture which enabled him to talk on their own level to gentlemen of the court and even, as an artist and a gentleman, to the king himself. The relationship of patron and artist, of Maecenas and Horace, fostered by Cosimo dei Medici, had been learned by the French kings and, when Leonardo da Vinci came to France (1516), it was at the king's personal invitation and he was given a handsome annuity (700 scudi), and ample quarters in the Castle of Cloux.¹ The king, Francis I, said of him—

Never any man had come into the world who knew so much as Leonardo, and that not only in matters of sculpture, painting and architecture, but in addition he was a great philosopher.

Leonardo was of course an exceptional man, but in his own lifetime his greatness was not realized and other artists enjoyed greater fame and success. Much lesser men were equally well received in France and became the friends of kings and of the great administrators, dukes and cardinals. Against the cultured artist and man of ideas, the ordinary, rather conservative, practical architect just did not stand a chance. He was forced into becoming a contractor, and deprived of the control of design. Here again was the divorce of design and construction; but we should hesitate to mourn the passing of the Gothic way of doing things. The old kind of architect failed to move with the times. Once the uneasy balance of church and state was definitely tipped in favour of the state a new order came into being. Architects, absorbed in the practice of architecture to the exclusion of the larger aspects of life and culture upon which it depends, ceased to meet the needs of the times and nothing, neither loyalty to their organization nor strikes nor jealous guarding of their secrets, could save them. If the Gothic architects had survived the art would have declined, because they could not have upheld its values with their aristocratic and cultured clients. The new kind of architect was able to maintain the status of architecture as an art, and this was a very important achievement.

The medieval castles of France were obsolete as fortifications and uncomfortable to live in. So it was in rebuilding castles that opportunity occurred for putting Renaissance ideas into practice. At first these ideas came mostly from Milan where the Renaissance was late in developing and where architecture retained the delicate elaboration which is characteristic of northern Italy. Under this influence the castles of the Loire Valley were built. The academic Vitruvian style of design as practised in Rome became much more influential c. 1530. This sort of design is exemplified in the Palace of Fontainebleau where a colony of Italian artists was established. A few French architects quickly learned the new tricks and it became unnecessary to import designers. Instead, Frenchmen went to study in Italy.

The French were far too proud, intelligent and creative merely to copy Italian design, and in the north they had a different climate which presented them with problems of lighting, heating and roofing. The solution of these in terms of Renaissance design was a stimulus to invention, and so there was a long period of vigorous experimental

¹ See Clifford Bax, *Leonardo da Vinci*, London, 1932.



PLATE 40



PLATE 41

PLATE 42. Palace of Chastillon

1. Gate of Chastillon, 1474-1475
- (General view, 1474-1475)
2. Gate of Chastillon, 1474-1475



PLATE 30. Palace Architectural in van Kerkhoven, Courtyard

- a) Entrance of the Palace of Popes, Avignon, 14th century
(Architect: Pierre de Courtonne. Materials: stone, brick, tile, etc.)
- b) West side of the Courtyard of the Palace, Avignon, 14th century
(Architect: Pierre de Courtonne)



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PLATE 36. Versailles

1. The west front of the Palace of Versailles, seen symmetrically and only slightly obliquely.

(Landscape 1. In Plate 35 about to 2 of Museum)

2. The Portico—seen obliquely to the right in Versailles, rather to the left.

(Landscape 2 of Plate 35)



Fig. 1. The United States Capitol, Washington, D.C.



Fig. 2. The United States Capitol, Washington, D.C.

Part 10. Chapter 10. J. H. Murray

- a. The second story of the building, Part 10-10-10.
- b. The first story, Part 10-10-10.

design (up to c. 1665). France evolved its own Renaissance architecture and produced its own theorists. Under Louis XIV the power of the state reached its zenith and government was centralized in a great administrative headquarters, the Palace at Versailles. The arts were deliberately fostered as a national asset (a policy which has proved to be of immense practical and financial value to France) and as an expression of the power and glory of France. The creation of royal academies (1655 onwards) was the means at once of bringing the new independent artists to heel and of breaking the power of the medieval craft associations. The academies encouraged pedantry and like all such institutions connected with the arts they tended to be in conflict with the younger generation, both in ideas and because they were a means of dignifying the elderly and, covertly, of denying major opportunities to the young. The academies were the channel for patronage. They thus had the sort of fascination which a drain outfall has for a crowd of greedy mackerel. Their influence, however, was by no means all bad. They, through their members, did stand for high principles of design and they did provide a much-needed foothold for architects on the very slippery surface of society. Through the academies and through royal patronage in France, there came into being the beginnings of a new system of architectural education which was to be of very great importance in the future. Paris became a centre for teaching the arts, and students came and still come from many other countries. An alternative to apprenticeship was invented and the conditions of a wider and more stimulating education in the arts than could ever have existed under the tutelage of a single master were created. The close link between this new system of education and the Italian humanist movement is confirmed by the establishment in Rome of the French Academy for training artists (1666).¹ This was to prove one of the most important contributions of the Renaissance to the development of architecture. It was a necessity in France because the system of an apprentice working as a draughtsman-assistant to a master could not by itself produce the kind of architect needed.

The proud autocracy of Louis XIV bore very hard upon men of independent spirit. It curbed the power of the Catholic Church and exterminated or banished Protestants. It was an oppressive rule and one which gave no encouragement to originality and little to sincerity. In one sense, the aristocracy were the greatest sufferers. Richelieu, in the preceding reign, had used men of lowly birth as the instruments of government, mean servants of the state hated by everyone and so the more trustworthy. The healthy institution of local government had been battered down and people accustomed to acquiesce in uncontrolled and undisputed authority. The nobility lost its power and its reason for existing. So there came into being a frivolous aristocracy, wealthy, but insecure and without real power, its fortunes dependent upon success at court, upon the favour of the king or the reigning courtesan.² It was in this artificial, brilliant, intriguing, anxious world

¹ See W. H. Ward, *Architecture of the Renaissance in France*, London, 1911. The first architectural student to win the *Prix de Rome*, involving a course of five years, did not go until 1720.

² See, for example, the *Memoirs of Saint-Simon*.

of influence, patronage, jaded sensuality, boredom and venal lechery which surrounded the king, that the ambitious architect of the *Grand Siècle* had to take his place. It was the background for this courtly life which he had to contrive. It was a costly, extravagant and luxurious architecture he was asked to make.

It is easy, however, to exaggerate the sordidness and immorality of the French court and forget its brilliance. Deprived of power, the aristocracy cultivated the arts and towards the end of the reign of Louis XIV and in the reign of Louis XV developed that exquisite taste and delight in prettiness which is called rococo. The pompous swagger of the age of Louis XIV gave place to an age of taste. In the main, architecture became more elegant and academic, and interior decoration and garden design more dainty and fantastic, but before the Revolution the academic influence affected interior design as well.

The totalitarian government of Louis XIV, brilliant, unscrupulous and infinitely painful for many of its subjects, the greatest of all Renaissance monarchies, failed both abroad and at home. It left a society strangely impotent to avert the doom which many people, including Louis XV, knew to be coming. It forced the creative and constructive people and the idealists into revolt because it had no place for its minority; and yet the polite and cultivated society of the eighteenth century was fascinated by the work of men like Voltaire, who were sowing the seeds of its destruction.

The French Renaissance gave to architecture some things of great importance. I have already mentioned schools of architecture. It also perfected a technique of civic design which was to mould Paris in the nineteenth century into the suave and beautiful city it is, and to influence the design of towns in all the colonies of the European powers and in the United States of America. The planning of buildings was significantly developed by French architects, and so were ideas about composition. Working from Roman precedents in each case they developed both the spacial relationship of rooms to each other and the massing of the parts of buildings into unified compositions. The effect of Renaissance design upon the vernacular was extremely happy and is to be seen throughout France and French territories overseas.

The French Revolution did not produce a new architecture: it borrowed the architecture of the old régime to impress the public; and so did Napoleon. Renaissance architecture remained the official architectural garb of successive governments, and it was much affected after c. 1850 by the love of elaborate ornamentation which was then prevalent.

CHAPTER XIII

THE RENAISSANCE IN ENGLAND

THERE is a sense in which Italian architecture is not typical of the Renaissance and of the world which came into being after the fifteenth century. When you throw a stone into a pond the little splash as it goes in is not typical of the pattern of waves which spreads over the pond a moment later. For Italy the Renaissance was truly a rebirth, though the child was never allowed to grow up properly; but in other countries it was not so much a rebirth as a response to a new stimulus, a violent reaction to what had happened in Italy. The Renaissance was by no means the only major factor in changing life throughout the world in the succeeding centuries, or even in western Europe in the sixteenth century. There was the Reformation, there was an economic revolution and there was a tremendous social upheaval which resulted in a complete change in the relationship of men to each other. Many of the forces which were at work did not derive from Italy and the humanist revival of classical authors—they came out of the medieval world itself. The Renaissance was not a force which acted upon a completely sterile and corrupt medieval world. Medieval society was not static any more than its architecture was unchanging. The Renaissance was a force acting upon a living and evolving society which had, quite apart from classical influences, come in the fifteenth century to a period of necessary change and growth. The Italian Renaissance affected this changing society in northern Europe in two ways: on the one hand by ideas and by inspiring imitation; and on the other by provoking disgust. There had for centuries been trouble in the north about the government of the Church from Rome. Some of the effects of humanism in Italy undoubtedly encouraged serious and devout men in the north to add the weight of their influence to a movement for revolt which had long existed. We have seen that the Renaissance was mainly secular and its creative force in Italy was spent when Spain became dominant and backed the Counter-Reformation. The reaction in the north was to a large extent religious and ethical. Italy had learned to admire Man and exult in living; but in going back to the ancient writers the Italians had found no substitute for Christian morality and produced no philosophy of their own except the cynical opportunism of Machiavelli. The revival of learning certainly jolted men, rather against their will, into thinking for themselves; but it did not produce in Italy conditions under which they could continue to do so in comfort nor did it produce a moral compulsion to think. Indeed, in mannerist decoration and some of the Baroque there is a remarkable element of wilful unreasonableness.¹ This does reflect, I think, the decay of humanism and of faith in its intellectual theories.

¹ See R. K. Wittkower, "Architecture," in *Chambers's Encyclopaedia*.

The Renaissance in the north was quite different—

It was not anarchic or amoral; on the contrary it was associated with piety and public virtue.¹

One of its most characteristic products was More's *Utopia*. The Renaissance was quickly entangled with the Reformation. The Protestant churches which emerged went, it is true, through a period of cruel intolerance, but there were many of them and this diversity, as well as the prolonged struggle against the Roman Church and the need to justify it, stimulated thought. The Renaissance period in the north shows not only the influence of humanism but also, to a great extent, the effect of much serious thought about ethics and religion. An indication of the importance of such matters is given by several of the plays of Shakespeare. Shakespeare was no highbrow. He was a remarkably successful and popular producer and dramatist and he made fundamental moral problems the central theme in many of his plays, not only in the noble tragedies *Hamlet* and *Macbeth*, but in the ruder *Pericles* and *Measure for Measure*. There came into being a certain moral earnestness and sincere desire for truth which, in Germany, the Netherlands and England, were to play a very big part in the development of philosophy and science. The Italian humanists had developed reason up to a point. Their work was taken up in the Protestant north and, while in southern Europe the Baroque was emotional and unreasonable, in the north intellectual and moral forces profoundly affected architectural design. These forces not only moulded Renaissance architecture but in the end destroyed it and gave birth to its successor.

Of this there was little sign in Tudor England at the end of the fifteenth century when Henry VII was founding a rich and powerful state under his own strong leadership and building the British Navy. He died in 1509 and was buried in one of the most elaborate and one of the most beautiful of Gothic buildings, in a tomb of marble carved by the Italian, Torrigiano. The Gothic craftsmen were worried about the importation of such people and the stage was set for the Renaissance to be played as in France. The curtain rose and Henry VIII came on, the very figure of an extravagant Renaissance tyrant, strutting in his gorgeous italianate finery. Enter the King of Spain's daughter; and clearly the next scene will be set in a great hall with Corinthian columns and a painted ceiling—but no! It did not work out that way. Not for a hundred years was that banqueting-hall to be built. Henry married Anne Boleyn (1533). The marriage with Catherine was declared null by Cranmer, Henry was excommunicated and the Church of England became independent of the Pope. Intercourse with Catholic Italy was curtailed. Then came the dissolution of the monasteries, starting in 1536.

For architects this must have been a very distressing event for it put an end to much of their work. Private castles had become obsolete and, though country houses were being built to replace them and the king commissioned several palaces including Hampton Court (begun by Wolsey) and Nonsuch, they can have done little more, if as much,

¹ Bertrand Russell, *op. cit.*, p. 533.



Fig. 10



Fig. 11

PLATE No. GREAT ELMWOOD HOUSE

- 1. Interior, London, 1910-1911.
- 2. Exterior, New York, 1910-1911.

than compensate for the loss of work on the great castles. The cost of living was rising very fast and architects and building craftsmen of all kinds were, as Knoop and Jones have shown,¹ in a very bad position. Inflation was a world-wide problem and it bore very hard upon people who were paid by fixed wages. There are records of "restrictive practices" to protect masons, and of men working overtime to try to make a living wage. Throughout the Tudor period architects must have had a bad time. Some apparently left the towns and went to live with relatives in the country² and so probably left the building trade altogether.

The new learning made rapid progress in England, but there was little sign of classical qualities in Tudor architecture. The Gothic tradition was quietly continued and adapted to deal with the problems of domestic design. Timber was becoming scarce,³ and both masons and second-hand stone (from the monasteries) were cheap. So houses which had generally been built of timber began to be built of stone. Brick was also used, but it was a luxury material at first. Major buildings were relatively rare and English architecture became largely a vernacular, a simple, unpretentious architecture in which increasingly throughout the sixteenth century some attempt was made to introduce classical details. In a few buildings, notably Wollaton Hall, the new classical idea of a simple unity, and the subordination of all the parts of the building to a single imposing conception was introduced.

The conditions of practice seem to have changed considerably and, though the picture is by no means complete, it appears that to cope with the relatively small jobs wanted by the nation of country gentry, farmers and traders which England was rapidly becoming⁴ the architect became a small building contractor. Masonry was no longer predominant in building. Domestic work needed the carpenter, the thatcher and the tiler, as well as other tradesmen, quite as much as the mason. Towns were small—the total population of England was between two and three million—and very few jobs could possibly have supported the kind of organization which had been employed to build the cathedrals, monasteries and castles of the Middle Ages. The farmhouse, the new cottages, shops, inns and even, occasionally, the country house would be built by local men working sometimes to a sketch by an architect, but more often to a design concocted by the builder in consultation with his client. Following medieval practice, each trade would participate in the design. Co-ordination was weak; but, on the whole, the plasterer, for example, could be relied on to design a ceiling which would fit in with the design of other trades. Architectural practice tended to become more localized than it had been in the Middle Ages. Consequently, the architect would tend to take his place in the life of the town as a small capitalist, a designer, a practical man and an employer of a few tradesmen; and he would have little or no contact with the developing intellectual life of Renaissance England.

¹ Knoop and Jones, *op. cit.* Masons' wages rose as from 100 in 1501 to 167 in fifty years and 202 at the end of the century, but food prices rose as from 100 in 1501 to 290 in 1551 and 437 in 1600.

² Knoop and Jones, *op. cit.*, p. 209.

³ See S. T. Bindoff, *Tudor England*, p. 11, London, 1950.

⁴ See G. M. Trevelyan, *English Social History*, Chapter V, London, 1944.

The indications are, I think, that both economic pressure and the change in the character of his work tended to depress the social status of the architect. We know of none who achieved the fame and influence of the great medieval architects, still less of men like Bramante or Michelangelo. There is some evidence that in major works such as Hampton Court the status of the master mason was lowered and that he was subordinate to quite a hierarchy of clerks. It may well be that the disunity of much Tudor architecture, its rather rambling informality, is due not so much to the wish of the architects as to the fact that the designer, the only man who could see the building as a whole, was not allowed enough authority. Any building in which the design is at the mercy of administrators is likely to become chaotic, but under modern conditions it is seldom likely to be as pleasant as Tudor architecture was, because the Tudors inherited a long tradition of good design, sensible building and wise use of materials. Where Tudor architects did have difficulty was in absorbing new ideas about decoration: where they introduced classical features they did it badly (by classical standards). This new *style* of design was something they did not understand and their problem was complicated by the difficulty of getting information. Contact with Catholic Italy was not easy even if architects had had the inclination and the money to travel, which they probably did not have. A certain amount of information came from books, but printing was still in its infancy and pictures were very crude. A rather curious result of this was that decorative motives and flourishes which were more or less natural to the crafts of the engraver and printer were painstakingly translated into stone. Much of the information that existed about Renaissance design came from the Netherlands and Germany, where it was still imperfectly understood.

Fine points of aesthetic criticism did not trouble the people of Tudor England very much. It was a vigorous and troubled age, an age of excitement, enterprise and great risk, an unstable age and one which has much in common with our own—ideological conflict, social upheaval and redistribution of wealth, war, intellectual ferment, centralized government, social legislation (Poor Law) and the growth of state-supported monopolies.¹

The architecture of the Tudor age was undoubtedly crude in decorative detail, but a great deal of it has survived and is very much loved. It has a simple, unpretentious character, a sort of natural charm and appropriateness which has endeared it very much to English people. This vernacular survived in some country districts right through the eighteenth century, and there are still a few builders in remote places who can design and build in the vernacular.

In fields other than architecture, Renaissance influence was strong and Elizabethan literature, for example, teems with classical allusions. With the advent of the Stuarts we find that the elaborate classical masques of Ben Jonson (1573–1637) are the rage at court and there is an ingenious and practical Mr. Inigo Jones contriving scenery for them.

Inigo Jones (1573–1652) is an almost legendary figure in the history of English architecture. By his influence and the example of

¹ A very useful survey of the period is: S. T. Bindoff, *op. cit.*

two important designs made in 1617 and 1619—The Queen's House at Greenwich for Queen Anne and the Banqueting-hall in Whitehall for King James I—he introduced pure classical architecture based upon the rules of Palladio.

Inigo Jones was forty-two years old when he was appointed Surveyor to the King's Works in 1615. Not very much is known about his early life, but it is certain that he was not brought up in the building trade or apprenticed to an architect. Indeed, it was only in the later part of his life that he became an architect. He was primarily an artist, a designer-draughtsman and painter, and a man with some interest in the things of the mind. He was also a thoroughly practical man, not so much as a technician (though he was a good craftsman as his drawings show), but as one who could get things done—one who knew exactly what he wanted and could get other people to do it. He travelled several times to Italy where he studied drawing and learned to admire the architecture of Palladio, whose book he bought in 1601.¹ It appears that Jones obtained employment at the Danish court, probably as a painter or designer on the strength of his study in Italy, the fountain-head of the Renaissance, and it is probable that this led to his employment at the court of James I, because James had married (in 1589) Anne, the daughter of Frederick II of Denmark. In London, Jones was employed mainly as a designer of scenery and costumes for the masques at court. These elaborate classical trifles, performed by royalty and their friends, were produced with lavish scenery, costume and effects. The staging of them must have required not only the considerable artistic ability which is shown in the drawings which Jones made for them,² but also a good deal of tact. To the man who could hold the job of costume-designer for two queens over a period of nearly forty years the task of changing English architecture was relatively easy!

In fact there was probably no opposition: the king and queen and their friends, already used to Italian scenery in the masques, would be delighted to have a real Italian building. The amazing thing is that nobody had as yet attempted to meet a demand which undoubtedly existed, and had existed for fifty years.

Inigo Jones brought about a revolution, but it was a revolution which had to happen sooner or later. It was due to him that it happened under the influence of Palladio.³

The old kind of architect, the inheritor in Tudor times of the medieval tradition, was a good architect and interested in his work. His standards of design were learned from tradition and from his materials and tools. He was conservative and he failed because he did not change with the times. Architecture is not an art which one can practise for oneself, alone in a garret. It is practised in the workaday world and it is for people. Inigo Jones had grasped the very important fact that technical "shop" may be fascinating to architects, but their clients are just not interested. The old architects were capable of

¹ See J. A. Gotch, *Inigo Jones*, London, 1928

² Many of them are in the library of the Duke of Devonshire at Chatsworth.

³ It is doubtful whether Palladio would be anything like so famous as he is if Inigo Jones had not bought his book.



Fig. 1



Fig. 2

PLATE 51. SUPREME COURT BUILDING, WASHINGTON, D.C.

1. The Supreme Court, Washington, D.C.
2. The Supreme Court, Washington, D.C.

(Caption: St. Charles Street)

(Fig.)

producing excellent buildings in the vernacular, but not of creating an architecture which was intellectually or emotionally satisfying to people who were imbued with the spirit of the Renaissance. Inigo Jones did not belong to the world of the country market-town with its deals in cattle and wool and corn, the world of the craftsman, the workshop and the alehouse. He did belong to the society of men of letters like Ben Jonson, Chapman, who translated Homer, the painter Van Dyck and many of the leading minds of his time. He was well known and respected at court. His advice was sought by the government on difficult problems such as water-supply, drainage and slums, and he clearly enjoyed the confidence and respect of the leading politicians of his day.

The architecture which Inigo Jones brought into being in England was an architecture of good appearance. Structurally it is quite uninteresting and ordinary. Its aesthetic is totally different from that of Gothic architecture. I think it would be wrong to regard it, as some people have done, as an unfortunate turn in the development of architecture. Much harm did come of it, as we shall see, but also a great deal of good. Besides, it is futile to regret historical events. Inigo Jones did rescue English architecture from remaining a simple unpretentious vernacular and re-established it as a great art in touch with the immensely productive culture of the Renaissance world. This was no mean achievement, and it is unjust to blame him for mistakes which were made a hundred years after his death.

There is a note in Inigo Jones's sketch book (dated 20th January, 1614) in which he says—

For as outwardly every wyse mā carrieth a graviti in Publicke Places, whear ther is nothing els looked for, yet inwardly hath his imaginancy set on fire, and sumtimes licenciously flying out, as nature hir sealf doeth often tymes stravagantly, to delight, amase us, sumtimes moufe us to laughter, sumtimes to contemplation and horror, so in architecture ye outward ornaments oft ought to be sollid, proporsionable according to the rulles, masculine and unaffected.

When Inigo Jones designed a costume for the queen he knew that she was not in the least concerned with the technicalities of making her corsage or the thickness of the wire reinforcement in the substructure of her skirt. What she did mind was what she looked like, and she would have resented the suggestion that all the artifices ought to be visibly expressed. Inigo Jones, the architect, was equally indifferent to structure. He knew enough to see that it was soundly done and his buildings have lasted well; but his victory, which raised architecture near to the level of Shakespeare and Purcell and re-established it as a great art and a social necessity, was won not upon the technical plane but by being an artist and a man of wide interests, good sense and sound knowledge.

Inigo Jones achieved high honour, higher than had ever before been achieved by a British architect, and the respect which he inspired was inherited by generations of architects.

The Puritans hated him and, after the fall of Basing House in 1645, he was taken prisoner and "carried away in a blanket, having lost his

cloaths" as a news sheet announced. Another called him "the King's Surveyor, and Contriver of Scenes for the Queen's Dancing-Barne."¹ The execution of Charles I on 30th January, 1649, put an end to the society in which Jones had lived and made his mark; but he did some work at Wilton before he died three years later, and his one-time pupil and assistant, John Webb, carried on his practice.

The kind of architecture which Inigo Jones had introduced was quickly adopted and soon began both to affect the vernacular and to produce architects of the new kind; but little progress was made in the art during the period of Cromwell's rule. The next great change came after the Restoration of the Stuarts (Charles II) in 1660 and the Fire of London in 1666, which gave another royal surveyor his chance.

By any standards other than those which were applied to his work by the Palladians in the eighteenth century, Sir Christopher Wren (1632-1723) was a very great architect. He was the true successor of Inigo Jones, whose Palladian way of design he took as a starting point for new adventures. In Wren's work the structural ingenuity of the Gothic was transfused into the formal architecture of the Renaissance.

Wren was not a man of the Renaissance in the sense that Inigo Jones was. He belonged to the new world which it had made possible. The wide circle of his friends included men who by the acuity and freshness of their minds were enlarging the bounds of human knowledge. Among them was Sir Isaac Newton (1642-1727) and Wren, himself an astronomer, was, with him, among the early fellows of the Royal Society. His was a new kind of mind brought to bear on the problems of design. He was continuing the Gothic tradition of structure, not by an advance in practical technique, but by the application of intellect to planning and the design of structure.

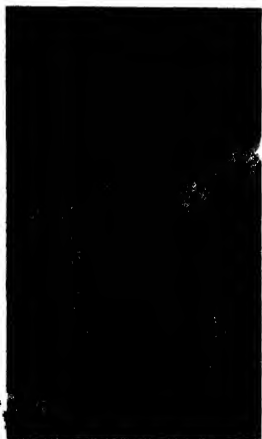
Because he was creative he has been criticized by academic classicists; but it is fair to say that Wren alone of Renaissance architects showed a way which, if it had been followed, could have led to an organic architecture which retained the good qualities of classical design and yet did not reject the new science. It must be remembered that Renaissance design was based upon what were believed to be scientific truths. It was in Wren's lifetime that the old problems were reconsidered and solved afresh. Some of the old beliefs were proved false. The earth was known to move in an ellipse and not in a circle (this cut at the roots of much classical theory of design) and Newton discovered new laws of the behaviour of matter, which were to lead to the possibility of calculating stresses in buildings. If the Renaissance designers of the late seventeenth and early eighteenth centuries had really been true to their principles there would have been an overhaul of architectural theory then; but Wren himself was no theorist. His mind was energetic, ingenious and practical, and he was able quite quickly to pick up the technique of Renaissance design. He was able to apply this with intelligence and taste but it was never his master. It was subservient to his great ability as an artist, as a designer of buildings.

It is important to remember that, when Wren was practising, Palladian design was still novel in England. The Renaissance was

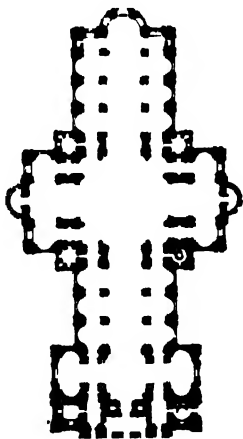
¹ J. A. Gotch, *op. cit.*

still a creative force, though we can now see that it was fast waning. We can also see that the work of scientists like Newton and Galileo (1564-1642), and philosophers such as Descartes (1596-1650) and Spinoza (1634-77) was extremely important, but nobody in Wren's generation realized what a force it was. There was no reason for Wren to abandon Palladian design, but there was equally no reason for an intelligent man to regard it as final. Wren certainly did not. He was quite prepared to draw inspiration from Gothic architecture, too. The spires of some of the London churches, the western spires of St. Paul's Cathedral and some of the structural ideas in St. Paul's and other churches have little or no classical precedent.

Wren was born in 1632 and educated at Westminster and Wadham College, Oxford. He was elected a Fellow of All Souls in 1653, and became Professor of Astronomy at Oxford in 1661. His background was as different from Inigo Jones's as Jones's was from that of the medieval architect. Wren was a scholar, but not in the way Alberti had been. The universities were beginning to play a big part in the life of the country, not only, as medieval universities had done, as calm retreats for academic studies and disputation, but increasingly as the main source of ideas and knowledge. Their influence grew and we now take it for granted that most high intellectual endeavour is fairly closely associated with the universities in one way or another. In the universities and through men who had studied in them, our modern conception of history, our standards of knowledge, our pure and applied sciences and, to a large extent, our philosophy and our ideas about society came into being. Modern civilization is, to a greater extent than is generally realized, a product of the activities of a new intellectual group in society, and the formative stage of this intelligentsia, upon which an expanding civilization now depends, was in the seventeenth century. Wren belonged to this intelligentsia, but his successors did not. When, after holding it for fifty years, Wren was ousted from the



ST. MARTIN'S, LUDGATE, IN
RELATION TO ST. PAUL'S



ST. PAUL'S CATHEDRAL



PLATE 63. St. Paul's Cathedral, London, 1895-1900
 Architect: Sir Christopher Wren

post of Surveyor-General of Works in 1718 by the machinations of jealous little men, the practice of architecture drifted away from the universities (though some dons practised it as amateurs) and, instead of going ahead with the great wave of intellectual activity and discovery, it sank back into the trough behind and was becalmed. No one man can be everything, but, even though Wren was a giant, one could wish that he or someone of his age had contributed a little to the ideas of architecture. Buildings themselves can seldom advance architecture. Thought about it, as well as practice of the art, is needed to keep it healthy and changing. If ideas are not formulated they become corrupted.

Wren's education in architecture was slight. He did some work for the universities and in 1665 he went to France where he met the great Italian Baroque architect, Bernini, who was hoping to alter the Louvre. He studied buildings in France and then returned to learn, mainly by experience of actual building. The Great Fire of London in 1666 gave him his opportunity, for he was already assistant to the Surveyor-General and he became Surveyor-General himself in 1668. Immediately after the Fire, Wren prepared a plan for rebuilding London. It was politically impossible at the time to carry it out, but the idea worked like yeast in dough and contributed materially to the enactment of modern town-planning legislation. Generations of architects in England and elsewhere have been able to point to Wren's plan and to London as it is and say: "What an opportunity wasted!" Wren accomplished far more than he knew when he prepared his idealistic scheme.

The greatest of Wren's buildings is St. Paul's. He designed it and carefully supervised it. There was a master mason and a master carpenter, but they were builders, not architects, in any sense of the word. The modern relationship between architect and builder had been established, though not the modern conditions of contract (working capital was still provided by the employer). In the detail design within the great overall conception, the craftsmen like Grinling Gibbons, the carver, and Tijou, the smith, were very much artists in their own right. This reduced very greatly (as compared with modern practice) the amount of detail drawing which had to be done, and gave a vigour and spontaneity to the detail as executed, which is rare in detail carried out to architects' drawings. By no means the least of Wren's achievements was that on his work English craftsmen learned a high standard of design and execution. It passed into the vernacular and much that is best in eighteenth-century architecture is due to this fine vernacular tradition of craftsmanship. It made it possible in the eighteenth century for men who had little or no practical knowledge of building to practise as architects.

Wren, who had begun his career as an architect in the robust and uninhibited Restoration period, lived longer than most of the great men of that age. When Wren was an old man times had changed and culture had become a fashion. This was disastrous for the arts because the patrons upon whom artists depended for a living regarded knowledge of the arts as a necessary social accomplishment. This is not to say that they were insincere in their love of works of art, but it does

imply that the standards they set were not the standards of art but the standards of connoisseurship. It is an important distinction because art is constantly changing; it is a response to life itself as it is lived; it is essentially contemporary; but the connoisseur who is not a practising artist himself must inevitably be at least one step behind. The artist lives in the present. The connoisseur and the critic can never, in the nature of things, quite catch up.

Most people would agree that to impose lay standards, based upon a general knowledge such as can be acquired from a good encyclopaedia, upon the modern practice of medicine or engineering would be absurd. Very few people would approve the idea that a chemist should be limited to the study of what is already known. Yet all these things have happened. In ancient Egypt c. 1400 B.C. medicine was controlled by the Church of Ammon. In Renaissance Italy the practice of structural engineering was largely subordinated to the ideas of the humanist scholars and in the Middle Ages throughout Europe experimental chemistry was regarded as wicked; and this sort of obscurantism is not unknown in the modern world. The arts have often suffered in this way and we have already seen how in Imperial Rome design was crippled by old standards, and how in Constantinople the cultured aristocracy of state and church froze a brilliant organic art into a style which was repeated for a thousand years.

The British aristocracy of the early eighteenth century learned about architecture in two main ways: by travelling and seeing Renaissance buildings in Italy; and by reading books. Usually they travelled when they were young and when their grand tour was over their taste was formed for life. They knew what was "right" and there was no possibility of argument. The most important books which they read were Vitruvius and *The Four Books of Architecture* by Andrea Palladio. To these were added early in the eighteenth century the volumes called *Vitruvius Britannicus* by Colin Campbell; and there was a growing output of such architectural pattern-books.

A few architects continued in the way of Wren but none of them was able to go further in that direction. One architect, Sir John Vanbrugh, took the licence which Wren had allowed himself but he lacked Wren's sense of structure. Vanbrugh made classical architecture romantic. He infused it, not with the true spirit of medieval architecture, but with the romantic appreciation of medieval architecture which became fashionable after his death. Vanbrugh foreshadowed the Gothic revival in that he made his designs emotionally evocative.

Most architects wholeheartedly adopted the Palladian style and gave their patrons what they wanted. In doing so they very much debased the social status of their profession. This would perhaps not have mattered very much if it had not withdrawn architecture from the creative intellectual life of the time. As it was, architecture was not rightly placed to go ahead along with other intellectual activities, and, so far as the universities were concerned, modern architecture did not become a subject of study until the twentieth century. This affected engineering, too, because structural engineering was an offshoot from architecture. To some extent we may trace the divorce

of the humanities and pure sciences from engineering to the fact that architects in the early eighteenth century accepted Palladianism.¹ The most dreadful result of this divorce was that engineering and much building for utilitarian purposes in the nineteenth century was done without any sort of philosophy, and it is only in recent times that the random and ruthless opportunism of engineers which has spread a blight over the land is beginning to be curbed and integrated with the social life of the country, and judged by some sort of scale of values.

Palladianism meant tying architecture to the taste of a landed aristocracy whose interest was very superficial. This aristocracy was already a waning force. Its privileged position was being attacked not only from without, but from within.

Architects were not the only artists who suffered. It was a difficult age for artists in every medium. The subjection of architects was more complete because their art depended almost entirely upon the patron's money; and Palladian design has the seductive charm of being easy. We know this because in schools of architecture in Britain and America until recently it was customary for students to learn it. It was normal for a boy fresh from school to be able to produce a creditable Palladian design within eighteen months, besides learning a good deal about construction and history which the eighteenth-century architect did not have to bother with. At least a tenth of such students could design houses as well as famous architects of the eighteenth century, so long as they stuck strictly to Palladian design.

The result of limiting design severely to one method, one set of proportions and one kind of detail was a pleasing homogeneity, and the style was easily extended from major buildings to cottages and barns, because all a country builder had to do was copy the details from a book, which he did. So, about the middle of the century, we find that architecture is generally restrained and orderly, but the life has gone out of it, and architects for the most part are very humble people who may be employed by a country gentleman or a university don to draw out their ideas. The client could in fact know as much about architecture as the professional architect and often did, and we find that in the building of some big country houses the only constant element was the client. Architects were hired and fired according to whether they did as they were told or not.

John Gwynn, a successful architect, writing in 1766, gives a lugubrious account of architectural practice in his day.² British artists, he said, received little encouragement but exorbitant prices were paid for antiques and poor foreign works. Patrons had no taste. The youth of the country was—

drunk with the good languages until their stomachs loathe and nauseate them, and they wear the appearance of taste and knowledge, and consequently are the encouragers of learning and the arts, they in time become the great buffoons, cheats and horse-courers.

Any ignorant fellow who might learn a bit of drawing and travel to Italy might set up as an architect, and architects were known to

¹ Not all the money should be apportioned to architects. The universities were notably myopic.

¹ See M. S. Briggs, *supra* note 299.



PLATE IV. CLASSICAL ORDER

1. St. Martin's Church, London, 1724.
Architect: James Gibbs.

2. The House of Commons, London, 1722.
Architect: William Kent.

3. The House of Commons, London, 1722.
Architect: James Gibbs.

combine the art of architecture with coffin-making, from which they derived a reliable income. Gwynn may have taken a too gloomy view, but there was much cause for his dissatisfaction and we should not allow the pleasant qualities of the Georgian buildings which have survived (many were shockingly badly built and have long disappeared) to blind us to the fact that the practice of all the arts under the aegis of the eighteenth-century patrons was extremely difficult. The architect was in no position, socially, intellectually or through any sort of professional organization, to assert his own standards.

The great advantage of Palladian architecture, the virtue claimed for it in the eighteenth century and acknowledged by any fair-minded student in our own time, is that in its centuries of experience of design were crystallized. It is easy to argue that, after a thousand years of development in Greece and Rome, the classical style was abandoned for an experimental architecture which failed, and, in the end, the classical style was reintroduced into Italy in the fifteenth century and there perfected. Palladio, it may be contended, wrote just at the time when the highest level of achievement had been reached and snatched the true principles of design from the edifice of the Italian Renaissance at the very moment when it was collapsing into the Baroque. This is how patrons and architects saw it in the first half of the eighteenth century and they believed that England had taken the torch of the true light handed on from Italy.

There was a great deal of substance in this argument. It was true that Palladian design was the result of centuries of work on the same problems. It was true that every detail of Palladian architecture was as near perfect as generations of experience could make it. It was true that a standardized system of detail and proportion brought "good design" within the capacity of the humblest village craftsman. It was true that standardized design gave unity to a multiplicity of buildings; and it was also true that Palladian design was simple and straightforward to learn, that the layman could easily understand and criticize it, and that it saved the architect a good deal of work in detailing. Furthermore, it would not be unreasonable to say that quite the loveliest old buildings in America and some of the most beautiful buildings in Britain were built in the eighteenth century under Palladian influence.

There were two fatal weaknesses in the Palladian system: in the first place it was implicit in it that buildings had to be beautiful and that beauty was a quality of things; in the second place Palladianism offered no future but an infinite continuation of Palladianism, and so an end of architecture as a creative art. Palladianism could have endured only if Britain had become a social fossil like ancient Egypt, and because of this we have little cause to mourn its passing.

So far as architects were concerned, it was mainly impatience with the bonds of the Palladian style which led to a break away from it. Architects and their clients became tired of it and lost interest. This is revealed, in the work of orthodox classical architects like Gandon, Robert Adam and Holland, in an increasing plainness of the exterior. In the early nineteenth century the classical villa was simply a well-proportioned box with holes and a lid, except for the relief of a



PLATE 4



PLATE 5

PLATE 4. THE GREAT HOUSE AND THE COUNTRY TOWN

1. *Stonham Palace, Dorsetshire, c. 1600.*
(London: Sir John Vanbrugh)
2. *Gloucester Gloucesterians, variously unknown after the Renaissance.*



1

111



2

112

PLATE II. TEMPLE BAPTIST HOUSE

1. Nineteenth-century house at Salisbury.
2. Late eighteenth-century house at Salisbury, Wiltshire.

decorative tracery of ironwork which was free from the Palladian jurisdiction. The later eighteenth-century architects enjoyed themselves inside their buildings and the fastidious, rococo taste of an increasingly effete and corrupt society gave them abundant opportunity.

There were rebels against Palladianism in the middle of the century and one of the most important of them was Horace Walpole, an exquisite gentleman, a polished classical scholar, a man of unimpeachable taste and exalted social rank. Horace Walpole was an amateur architect of originality and distinction, though he built only one building, his own house, Strawberry Hill, on the north bank of the Thames. By classical standards this has been judged a very bad design but by modern standards it deserves a very different assessment, not so much for its fanciful and charming rococo decoration, as for its plan and spacial qualities in relation to decoration.

Horace Walpole was a Romantic and he deliberately sought inspiration from Gothic architecture. He was one of those who developed a cult of the morbid and sensational aspects of medievalism, of melancholy and of ruins. He had, I think, no understanding of Gothic architecture, and he used it as a style, as an alternative style to the classical. It seemed logical enough.

Trade with the East had been expanding and the rich decoration of India and China began to be known. It had delightful qualities unknown in classical design and many pieces of furniture such as lacquer cabinets were imported, as well as fabrics, pictures and ornaments. Chinese wall-papers became fashionable and a great English cabinet-maker, Thomas Chippendale, produced fanciful and charming furniture in the Chinese style. A young Englishman, William Chambers, who afterwards became personal architect to King George III and was knighted, wrote a book on oriental gardens and built a Chinese pagoda at Kew. Chambers was, in his more serious work such as Somerset House, an orthodox Palladian, but he did not object to the Chinese style as an alternative in suitable conditions.

Then came the publication of Stuart and Revett's *Antiquities of Athens* in 1762. Here was another possible style, the Greek, the fountainhead of classical tradition. If English architecture could be Italian, why could it not be Greek?

Palladian architecture had come to England from abroad. It was an eclectic¹ architecture, an architecture chosen as an alternative to the English tradition, and it was so chosen because, in the Renaissance, English culture was linked with the European revival of classical art and learning; but in the middle of the eighteenth century the cathedrals and the neglected parish churches testified that Palladian architecture was a foreign style. Once the idea of style² was accepted it was easy to make a case for any style, and it was certainly in the interests of architects to do so because it freed them of the too knowledgeable client. An architect who could start a fashion, as Stuart did for Greek, or Adam for a vague sort of Etruscan, was made. Fashion

¹ See footnote, p. 61.

² The word style had not been used in this sense prior to the middle of the eighteenth century. It had in fact had an almost opposite meaning—style in writing, style being an individual quality peculiar to one author.



Figure 10. Service as a % of Governmental Expenditure

1. *Reptiles*, 1955, Tetrahedron. To the right of the cover—right-handed amino
To the left of the cover—left.
2. *Flora of Japan*, 1955, London. 1955.
3. *Reptiles of New Guinea*, 1955, London. 1955.

was tremendously important in eighteenth-century society and the idea of fashion in architecture came easily. So we find that by the end of the eighteenth century there were many styles of architecture and most architects habitually designed in more than one. Even Sir John Soane (1753-1837), Professor of Architecture at the Royal Academy and a great architect, designed in the classical and Gothic styles regularly, and toyed with others. Like most of the more prosperous architects of his day he regarded the orthodox classical style as suitable for important public buildings, and the Gothic and other styles as generally appropriate for minor works, such as villas and small churches. Nash, a "hard-boiled" practitioner if ever there was one, characteristically complained that the Gothic style was a great nuisance because it involved much more work for the architect than classical design. He practised several styles, and had a knack of getting first-rate enthusiastic designers to work for him as assistants.

Architects broke with Palladian architecture from sheer boredom, and to satisfy the demand for rococo charm. They established the principle that there were many possible styles to choose from, and eclecticism was firmly rooted in the eighteenth century. The most serious and ultimately annihilating attack on Palladian principles came from the philosophers, and particularly from David Hume.

The whole of his essay, *Of The Standard of Taste* (1741), should be read by any serious student of eighteenth-century architecture. Here it is possible to give only a few crucial quotations—

Beauty is no quality in things themselves; it exists merely in the mind which contemplates them; and each mind perceives a different beauty. One person may even perceive deformity, where another is sensible of beauty; and every individual ought to acquiesce in his own sentiment, without pretending to regulate those of others. . . . It is evident that none of the rules of composition are fixed by reasonings *a priori*, or can be esteemed abstract conclusions of the understanding, from comparing those habitudes and relations of ideas, which are eternal and immutable. Their foundation is the same with that of all the practical sciences, experience.

This was sapping the very foundations of classical art and in place of the "rules of old discover'd" Hume put the emotional response of the beholder as the criterion of aesthetic judgment—

Those finer emotions of the mind are of a very tender and delicate nature. . . . A good palate is not tried by strong flavour, but by a mixture of small ingredients where we are still sensible of each part, notwithstanding its minuteness and its confusion with the rest. In like manner a quick and acute perception of beauty and deformity must be the perfection of our mental taste. . . . A delicate taste of wit or beauty must always be a desirable quality, because it is the source of all the finest and most innocent enjoyments of which human nature is susceptible. . . . Wherever you can ascertain a delicacy of taste, it is sure to meet with approbation; and the best way of ascertaining it is to appeal to those models and principles which have been established by the uniform consent and experience of nations and ages. . . . By comparison alone we fix the epithets of praise or blame, and learn how to assign the due degree of each.



PLACES BY RAILWAY STATIONS IN AUSTRIA

1. House at Vienna, Austria, 1875.
2. House at Vienna, Austria, 1875.
3. House at Vienna, Austria, 1875.
4. House at Vienna, Austria, 1875.
5. House at Vienna, Austria, 1875.
6. House at Vienna, Austria, 1875.
7. House at Vienna, Austria, 1875.
8. House at Vienna, Austria, 1875.
9. House at Vienna, Austria, 1875.
10. House at Vienna, Austria, 1875.

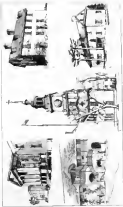


PLATE 16. HOUSES IN AMERICA

1. Small house, North Carolina, 1810. 2. Small house, 1810.

3. Small house, North Carolina, 1810. 4. Small house, 1810.

5. Small house, North Carolina, 1810. 6. Small house, 1810.

7. Small house, North Carolina, 1810. 8. Small house, 1810.

9. Small house, North Carolina, 1810. 10. Small house, 1810.

11. Small house, North Carolina, 1810. 12. Small house, 1810.

In another essay, *The Sceptic*, Hume wrote—

I have long entertained a suspicion with regard to the decisions of philosophers . . . they confine too much their principles. . . . Our own mind being narrow and contracted, we cannot extend our conception to the variety and extent of nature, but imagine that she is as much bounded in her operations as we are in our speculation.

This was a very just observation and might as easily have been applied to architecture as any other subject in 1741. Hume was among the first to perceive that nature and human activities are not nearly so simple as people had been inclined to think. Like his French contemporary, Voltaire, he was challenging dogma, probing at the easy assumptions and pulling them to pieces.

In Hume's writing we can see three ideas which profoundly affected architecture: the denial of the objectivity of beauty, and the substitution of a subjective aesthetic; the idea that the cultivation of sensibility, of what he called delicacy, of a discriminating taste, is needful; and, thirdly, the idea that human nature is and should be complex and various, not simple and standardized. The first idea contradicted classical theories of design, the second was the main idea behind the rococo, the idea which justified Mozart's music, Walpole's Strawberry Hill, Chippendale's furniture, Adam's decoration and the Brighton Pavilion. The third idea justified wide variety and, taken with the view that principles have been established by the consent and experience of nations and ages, encouraged eclecticism.

It would, of course, be wrong to say that Hume alone was responsible. He was undoubtedly one of the most important thinkers of his age, but he was not entirely at variance with it and other men were thinking along similar lines. The age of taste which came at the end of the eighteenth and lasted until the third decade of the nineteenth century was not really a product of the Renaissance. The Renaissance made beauty objective and attained it by satisfying the laws of design. The rococo was a product of the idea that beauty was subjective and that what mattered was individual taste. So, although we can rightly regard some aspects of the rococo in Britain and France as symptomatic of the decay of the kind of society which the Renaissance had brought into being, we must regard it mainly as a product of new ideas which were to be immensely creative. The sensibility, the exquisitely emotional music of Mozart, was a stage on the way to the powerfully expressive work of Beethoven, and to Schubert and Wagner. The development of architecture was not altogether dissimilar, but music had not been tied, as architecture was, to the actual forms of Roman composition.

In the late eighteenth century the new and heady wine of what, for want of a better name, we call the Romantic Movement—a misleading term—was put into the old bottles of classical columns and cornices, and it soon burst them. The other set of old bottles, medieval architecture falsified into a medieval style, was equally useless. The Renaissance as a creative force in architecture was over, though there were still to be many fine buildings in a classical *style*. Because of the idea of style, and the curious academic attitude to architecture, and because of the



PLATE 19. ROMANESQUE ARCHITECTURE IN THE UNITED STATES

1. The Capitol, Washington, viewed from
Washington St. (Thames and above)
2. House in Glasgow, North Carolina

divorce between design and structure (all of which were products of the Renaissance) it was not possible to create a new architecture without first going through a century of confusion.

It is no good regretting the Renaissance as some Victorian ~~Gothicists~~ were wont to do. It happened. It was in the nature of things; but, in spite of the great architecture it produced, it may well be that it so developed—away from and not towards truth as revealed by science—that it reached a condition from which no further progress was possible. It must also be borne in mind that Renaissance architecture belonged to a social and economic system, and to an intellectual climate, which did not endure.

INFLUENCE OF THE ENGLISH RENAISSANCE IN AMERICA

The Renaissance was, as we have seen, partly a return to the values of an age before the nation states of Europe came into being. The architecture of ancient Rome was consistent from Spain to the Middle East, from Scotland to North Africa. It was of two kinds, the official architecture of Rome and the localized vernaculars based on climate, materials and traditions. The Renaissance came at a time when the medieval idea of a united Christendom was being abandoned even as an ideal, and the familiar boundaries of modern national sovereignties were being formed. The Renaissance was linked with the tragic rise of European nationalism, and in the main countries of Europe, particularly in Spain, France and Britain, the different forms of Renaissance design—which the influences of medieval tradition, climate, materials and particular Italian architects had brought about—were self-consciously cultivated as national styles.

The Renaissance coincided with the beginning of the great expansion of western European civilization and the foundation of colonies. Into these colonies the national styles of Renaissance architecture were introduced. In South and Central America, with the exception of a few islands in the Caribbean, the architecture was Spanish. In North America it was, at first, mainly English, French and Dutch, but English influence was by far the strongest.

The men who went out from England to found new homes in Virginia were undertaking a great and hazardous adventure. The motives which impelled them to leave home were very strong and many of them went in sorrow. They came to a vast and beautiful land inhabited only by the semi-nomadic Indians, where there was little cultivation and no architecture.

At first they must have put up rough log cabins to shelter themselves, but as soon as they could build proper homes their instinct was to reproduce those they had left in "the old country." They did not fashion a new architecture to suit the different climate and materials. Nostalgia for the comfortable, well-remembered and well-beloved architecture of English towns was the dominating influence, and where materials were unsuitable for the reproduction of English architecture they did the best they could. For example, the stone quoins of English Georgian houses were often copied in painted timber, just as a later generation copied the timber framing of medieval houses with thin painted boards.

It was only gradually that new architectural solutions were attempted; and the more drastic modifications of the English way of designing came about in the south where a warm climate made smaller windows and large verandas a necessity. The widespread use of timber also had its effect upon design. It seems that generally the early settlers, once they had got beyond the log-cabin stage, followed the medieval manner of building framed structures with brick or wattle and plaster infilling, but this technique was superseded by a method of timber cladding, called clapboarding in America and weather-boarding in England. It was a method native to Kent and Essex in England where it was extensively used for cottages, but in America it was developed as a delightful way of building quite large houses.

Up to the end of the eighteenth century American Renaissance architecture developed on the same lines as English architecture, and the same pattern-books were used on both sides of the Atlantic. On the whole the monumental architecture of England as exemplified in the great country houses was not copied. American domestic architecture was derived from the middle-class architecture of the English country town. After the Declaration of Independence in 1776, when the monumental architecture of a new nation state came to be built, there was a natural tendency to look to France and Italy, and then to Imperial Rome, rather than to England; but by that time the tide of eclecticism had begun to rise and the United States, like all the other countries of the western world, went through its period of international eclecticism and produced in great abundance its own academic, conglomerate architecture, which differs very little from the architecture of European countries in the nineteenth century.

PART VI: THE NINETEENTH CENTURY

CHAPTER XIV

ECLECTIC ARCHITECTURE

WE now come to the nineteenth century in which far more building was done than ever before and a new kind of society, economically dependent to a large extent upon trade and industry, came into being. Within the scope of this book it is impossible to deal with the whole of nineteenth-century architecture in Europe and America. In fact, it would be very confusing to try to do so, and there would be a great deal of repetition. The method I shall adopt is to take a sample; and the choice is not difficult. Britain remained a single political unit throughout the century. In Britain the Industrial Revolution came early, and its effects were more complete than elsewhere. Moreover, in Britain the process of change was relatively peaceful and a high proportion of the initiative and invention which created the new society was British. There is also the important factor that it is very difficult to know any other country as well as one knows one's own. So I shall consider British architecture as the main theme of this chapter, and notice the architecture of other countries only in so far as they differed materially from it, or as they contributed ideas of great historical importance.

The nineteenth century was a period of activity and zeal. In almost every department of life there was progress and reform. The conventional picture of Victorian complacency and callousness in the face of social injustice is entirely false.¹ Opposition there certainly was. Stupidity and avarice were no less common in the nineteenth century than in other times, but the amount that was achieved by idealistic and disinterested people was remarkable.

Most of the worst evils of the nineteenth century were a legacy from the Georgian period, and the Victorians set about putting them right. I need cite only child labour in the mines and factories, slavery, organized prostitution, crime gangs (including the much glamorized highwayman of the romantic novels), slums, an appalling infant mortality rate (75 per cent before the age of six in 1740), cholera, debtors' prisons and almost every conceivable form of corruption in the machinery of government. If, as is sometimes claimed, architecture is a reflection of society, then the calm façades and stately rooms of Georgian upper-class homes must not blind us to the vast extent of sordid back-premises and the squalid homes of the poor.

From the eighteenth century the nineteenth inherited a vernacular architecture which still had its roots in sound constructional technique; but the country builders had become accustomed to the idea of style

¹ To justify this statement would take more space than is available here. See E. L. Woodward, *The Age of Reform, 1815-1870*, Oxford.

and acquired the habit of finding their details in books. There were a few prosperous and influential architects, but on the whole the reputation of architects, as of other professional men, did not stand high. Architects still depended to a large extent upon aristocratic patronage; but speculative building of town houses for the growing middle class was also important. The idea of style was universally considered to be valid, Palladianism was almost dead, its principles forgotten, and Greek architecture was usually regarded as setting the highest standards.

The concepts which architects and the public accepted as being valid are so different from our own that it seems worth while to quote at some length from a book by Thomas Rickman which states them explicitly. Other authors might be quoted, but Rickman has the rare virtue of being lucid and his book was important because it established the terminology of the Gothic revival style. Rickman's book was published in 1817 and its title is significant—

An attempt to discriminate the styles of English architecture from the conquest to the Reformation with notices of eight hundred English buildings preceded by a sketch of the Grecian and Roman orders, by Thomas Rickman, architect.

Architecture may be said to treat of the planning and erection of edifices, which are composed and embellished after two principal modes: first, the Antique, or Grecian and Roman, second, the English or Gothic. (P. 1.)

But, before we proceed to treat of them, it will be proper to make a few remarks on the distinction between mere house-building, and that high character of composition in the Grecian and Roman orders, which is properly styled Architecture; for, though we have now many nobly architectural houses, we are much in danger of having our public edifices debased, by a consideration of what is convenient as a house; rather than *what is correct as an architectural design*.¹ (P. 1.)

It is acknowledged on all hands, that our best models, in the three ancient unmixed orders—the Doric, Ionic and Corinthian—are the remains of *Grecian*² temples. (P. 2.)

In a few words, we may sum up the grand distinction between mere building and architectural design: the former looks for convenience, and, though it will doubtless often use architectural ornaments and preserve their proportions, when used as smaller parts, yet the general proportion may vary very widely from the orders, and yet be pleasing, and perhaps not incorrect; but all this is modern building, and not architecture in its restricted sense; in this the columns are essential parts, and to them and their proportions all other arrangements must be made subservient. . . . (P. 3.)

English architecture may be divided into four distinct periods, or styles, which may be named—

- First, the Norman Style,
- Second, the Early English Style,
- Third, the Decorated English Style, and
- Fourth, the Perpendicular English Style.

¹ This phrase is not italicized in the original.

² This word is not italicized in the original.

. . . Clear distinctions are now almost entirely confined to churches (P. 39.)

We shall therefore proceed to the detail of those distinctions, which being once laid down with precision, will enable persons of common observation to distinguish the difference of age and style in these buildings, as easily as the distinctions of the Grecian and Roman orders. (P. 37.)

The author now presents the world with a rational arrangement of the details of a mode of architecture on many accounts valuable, and certainly the most proper for ecclesiastical edifices. (P. 109.)¹

Rickman was completely successful. He had produced a simple illustrated handbook which set out first the classical orders and then the Gothic "styles." He dealt with every component of Gothic church-buildings and with the aid of his book anybody could quite easily "understand" and classify Gothic architecture. A vicar could proudly show a visitor round his church and point out the various periods. Following Rickman's instructions he could examine tracery and mouldings and discover successive alterations and additions. A nomenclature can be a most dangerous thing and few can have been more malignantly effective than the one invented by Rickman. Until very recently the dating of almost all medieval churches has been based upon it. It was sufficiently nearly right not to conflict grossly with what documentary evidence there was, but it is not reliable. A much more serious result was that it made Gothic architecture a series of styles. It was based upon Gothic decoration in stone churches and not upon the principles of Gothic architecture. In fact it imposed the Renaissance upon the Middle Ages and the Gothic revival developed not upon Gothic principles but upon Renaissance principles as a *style* of design. The "English Decorated Style" came to be regarded as the finest kind of Gothic architecture.

The Grecian style was the one which appealed to the small number of academic architects. They were mostly pupils of Sir John Soane (1753-1837) and they built many imposing buildings up to about the middle of the century. Then the Gothic style began to gain ground, partly owing to the work of A. W. N. Pugin (1812-52), who had a real enthusiasm for medieval decoration, but no real sense of Gothic architecture. With the building of the Palace of Westminster (1840-60) the Gothic style was established as suitable for major public buildings and was exploited by Sir Gilbert Scott (1810-77) who endeavoured to enliven it by introducing Gothic detail from other countries. This fashion was encouraged by the writings of John Ruskin (1819-1900). Towards the end of the century, the classical style came back into favour, and English architecture of the Restoration period was taken as a model. Throughout the century no style was barred; Ancient Egypt, Turkey, Moorish Spain and the Far East all contributed detail for the fancy dressing of buildings and a number of "transitional styles" were identified, such as "Elizabethan" and "François Premier." If there was progress in architecture it was in the direction of a more faithful rendering of prototypes. In 1800 a vague

¹ The quotations are taken from the Second Edition of 1819. There were eight editions.

scenic resemblance to Gothic architecture was satisfying. By 1860 architects were carefully studying authentic medieval detail and travelling to Venice or to Spain in search of it, as in the eighteenth century they had travelled to Italy for Renaissance ideas.

In fact I think it is true to say that, although the nineteenth century produced many individual buildings which can be regarded as fine architecture, yet the art remained static or even declined. In 1890 buildings were no better than they had been in 1800, nor was the ordinary practice of architecture animated by any important new ideas. It is tempting to the vanity of architects to blame their patrons for this and say that the purse-strings were held by Philistines; but this will not do. There were times when people like Ruskin, who with all his faults was certainly not a Philistine, were in control (as in the case of the Oxford Museum), and the results were no better than when bankers or hospital trustees were the promoters.

The Victorian period was one of seething change and of very rapid growth. All sorts of new institutions were coming into being from insurance companies to new religious denominations and from public slaughter-houses to corporations of manufacturing towns. They sought to express their sense of importance and their stability in the buildings which housed them, and they followed the lead of the Renaissance aristocrat who had done just this thing when he built his great house, his Castle Howard or his Holkham Hall. Power was increasingly coming into the hands of people who had no tradition behind them, no social standing but what they could make for themselves, no standards of taste and no interest in the arts. They were not the men to sponsor new artistic movements. They wanted vintage architecture which everyone could be relied upon to respect, not because they understood it but because of the label on the bottle. Such clients as these would have continued to accept the grand architecture of the early part of the century. They were not bad patrons, conservative perhaps, but not malign. They wanted good stuff and on the whole were prepared to pay for it. Architects had immense opportunities but nothing much came of them. Perhaps the immensity of the opportunity was an important reason for the failure. I cannot see that there is any evidence for believing that architects were prevented by their clients from designing well.

It is, I think, in the architectural profession itself that we must seek for the main reasons why the age which produced great men in most walks of life, including some of the arts and especially in science and literature, failed to develop a modern architecture.

Rickman's view, as quoted above, is a fair statement of the architect's aesthetic early in the century, though a few would have claimed that the classical style was the only good one. Architecture was a "fine art" above sordid considerations of utility and little concerned with construction—that was mere building. The most extreme form of this view was that architecture was an intellectual discipline and that it was rather a pity that buildings should have to be built at all.¹ Thus we have the paradox that architecture becomes an intellectual

¹ This extreme academic view was developed particularly in France later in the century.

discipline and yet is almost completely separated from the normal home of such disciplines, the universities, and to a large degree cut off from the developing intellectual life of the time. Intellectually architecture is turned in upon itself and isolated from healthy criticism and common sense as well as from philosophy and the other arts. Architecture creates its own standards and architects seek not the admiration and understanding of the public, but of other architects.

Cut off as they were, architects were able to cherish a philosophical absurdity. They kept the Renaissance ideas of style and of formal arrangements which would produce "beauty" and at the same time accepted in a muddled sort of way the doctrine of Hume, the basis of the rococo, that beauty is a matter of personal taste. At the same time they yielded to the fascination of the picturesque, of romance and story. In short they retained an attitude towards architecture which is tenable only if beauty is a quality of things, and yet they designed as though beauty were a matter of taste and *not* inherent in things. There is no reason to deride architects for this, because the aesthetic problem is a difficult one, and no solution for it was found until, in this century, it was realized that art is not concerned with making beautiful things, but is a kind of language.¹ This is, I think, the reason why literature, which is an art of language as ordinarily understood, went ahead much faster than the visual arts, which were tied to a concept of objective beauty and practised in a society which believed that beauty was in the eye of the beholder. So far as I know these problems were not considered by any architect, nor were architects normally in contact with people who might have considered them. Aesthetically, architects had gone up a cul-de-sac where there was no room to turn round. They were not prepared to back out and start afresh, and so they sat down and played what Sir Edwin Lutyens called "the high game" of architect's architecture—really the theories of Alberti, with all the foundations upon which they were based dissolved away by the work of scientists and philosophers in the seventeenth and eighteenth centuries.

Architecture had parted company with structural design in the Renaissance and this had not had very bad results while materials and methods of construction had not changed. It had just meant that the more complicated forms of construction had been abandoned and simple ones adopted instead. This was by no means all loss. It was a weakness of some late Gothic architects that they preferred difficult ways to easy ones (another form of the disease, architect's architecture or art for art's sake²). With the Industrial Revolution and the growth of science and its application, new materials and new ways of building were invented. Some of these had great practical advantages and potentialities and some were much cheaper than traditional methods. For example, cast-iron columns were cheaper than stone and were used for that reason in the many cheap churches which were built early in the century.

¹ See p. 228.

² Art for art's sake was, of course, a European movement in all the arts from c. 1835 (see *The Aesthetic Adventure* by W. Grant, London, 1945) but architects had their own peculiar version and only really and consciously came into contact with the aesthetic movement when it was a spent force in the other arts.



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PLATE 10. MONASTERY ARCHITECTURE

- a. Monastery of the Holy Sepulchre, Jerusalem, 1890-1900.
Architect: John Smith
- b. Monastery of the Holy Sepulchre, Jerusalem, 1890-1900.
Architect: John Smith



PLATE 71. *Ancient Orders.*

1. St. George's Hall, Liverpool, 1856.
(Architect: W. L. Storer)
2. St. Francis Church, London, 1820.
(Architects: J. C. and W. H. Storer)
3. Central Station, Newcastle-upon-Tyne, 1856.
(Architect: John Dobson)
4. The Athenaeum, London, 1820.
(Architect: Thomas Sturt)



PLATE 1



PLATE 2

PLATE 11. SCENES WITH BRYAN

1. *Handel Opera House, Baltimore, Md.*

Exterior. — In John Street

2. *Johns Hopkins College, Baltimore, Md.*

Exterior. — View from Johns Hopkins College

Increasingly, new materials and methods became available. Many were developed by manufacturers, some by engineers and some by architects. In a few types of building, notably conservatories and greenhouses early in the century where the function of the building necessitated a complete departure from precedent, these materials were used in a fresh way with quite charming results. Greenhouse design culminated in the enormous Crystal Palace of 1851. It has been regarded by some people as a foretaste of a new kind of architecture and its designer, Sir Joseph Paxton, has been called a pioneer. I think that in fact nobody thought of it as architecture. It was a large greenhouse of an already familiar type and we must credit Paxton with personality and powers of persuasion because he was able to convince the committee that his greenhouse was more suitable than an architectural structure as then understood.

Some architects were by no means uninterested in structural problems and many were alive to the need for reducing the cost of building by using new methods. For example, John Dobson, in his inaugural address as President of the Northern Architectural Association in 1859, stressed this very point and explained how he had by knowledge of the processes of rolling iron for roof-trusses been able to make a suggestion which had saved £1,400 on the roof of Newcastle Central Station. This roof is a very fine piece of structural design, but all the rest of the station is classical. It never seems to have occurred to Dobson or his contemporaries that structural design of this kind was comparable in any way with the design of the great classical portico.

In 1837 "Candidus"—the "Astragal" of his day—wrote in the *Architectural Magazine and Journal* about a Dr. Ritgen—

Antagonistic as they are to each other, Vitruvianists and Anti-Vitruvianists, Palladianists and Anti-Palladianists, Greeks and Anti-Greeks, Goths and Anti-Goths have all one common point of contact and sympathy, namely, that they agree in acknowledging authority, and in deferring to precedent, whereas the formidable Doctor runs amuck at all precedents, save the fundamental one of evolving style out of the necessities or proprieties of construction. . . . His doctrine, therefore, must be equally unpalatable to our Welby Pugins and our Smirkes, to our Gwilt and our Wilkineses, all of whom must look upon him as a revolutionist and an innovator of the worst kind.

As is well known, engineers made progress in the design of bridges, but they did not produce a new aesthetic. On the contrary, throughout the century engineers accepted architectural standards and decorated their structures according to architectural principles, even to the extent of casting iron arches with key-stones as in Darlington Station and elsewhere. Engineers contributed only the idea that plain building was good enough where beauty was unnecessary.

It is surprising to find that in the enlightened *Architectural Magazine and Journal* in 1837 someone who signed himself "M" wrote on the principles of design and said—

The beautiful in architecture, not less than the convenient, is dependent on a perfect regard to the simple purpose of a structure, and to the nature of the material to be used in its construction.

This publication, however, lasted only a few years and "M's" views had to wait a century for recognition, when they were regarded as the original utterance of somebody else. Structure was not the stuff of architecture—it was the support for the scenery and not to be seen, scarcely to be talked about with decency. If we were seeking to apportion blame for this we should go back beyond the Victorians and Georgians to the early seventeenth century; but really it would be rather unfair to detract from the just reputation of Inigo Jones because his ideas were still accepted two centuries later.

In their philosophy and consequently in their attitude towards structure, architects were out of touch with reality. There is another reason for the tragic failure of Victorian architects which is sombre and discreditable, but that is no reason why it should be left out of a history of architecture.

Writing in 1843-4, Charles Dickens created in *Martin Chuzzlewit* the "Architect and Land Surveyor," Mr. Pecksniff. We must make allowances for caricature, but Pecksniff, like other characters in Dickens (Sarah Gamp and Mr. Squeers for example), was no myth. Mr. Pecksniff, besides collecting rents which "can hardly be said to be a strictly architectural employment" received pupils. "His genius lay in ensnaring parents and guardians and pocketing the premiums."¹ When Pecksniff had buildings to do, the design and drawing were done by these pupils and one wretched assistant, Tom Pinch. The pupilage system was the means of training architects and in some cases it worked well, but it could be, and too often was, grossly abused as a source of income for architects and as a way of getting cheap labour. As a system of architectural education even at its best it was very limited, and the atmosphere of a small office was not one in which a young man would learn to think about the wider aspects of the art, though he might become a sound practical assistant within the limits of his master's experience.

There were not very many architects at the end of the eighteenth century, certainly not enough to cope with the vast expansion of population and the building needed to house it. The population of Great Britain in 1811 was twelve million. Twenty years later it was sixteen and a half million, and in 1851 it was over twenty-one million. The main cause of this increase was the reduction in infant mortality.² It is necessary only to look at any town in which industry developed to see what an enormous amount of building was done—far more than could have been designed by experienced and trained architects. The only way to increase the number of architects was by article pupilage and no busy, competent architect could afford to have very many and teach them properly. Some boys were lucky and were apprenticed to London architects like Sir John Soane, and they were able to attend lectures at the Royal Academy. On the other hand, there must have been a great many Pecksniffs and a tragic number of boys whose training in the profession was about as bad as it could be. This undoubtedly tended to degrade the profession. The provincial architect was generally not very well thought of and, though there were some

¹ Charles Dickens, *Martin Chuzzlewit*, Chapter II.

² See Woodward, *op. cit.*, p. 1.



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PLATE IV. TOWNS AND BOUTHERS

1. *St. John's Church, Oxford, Eng.*
(Artist: William Marshall)

2. *St. John's Church in Oxford, Eng.*
(Artist: Thomas Girtin)

[illegible]



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From the Cancer Research and Biostatistics Center

- (1) *Shores of Bournemouth*, London, (Penguin)
(Illustrated by Charles Riley and 4 10 5 Post)
- (2) *The Lark Curlew*, London, (Penguin)
(Illustrated by G. B. Scott)
- (3) *English Seashores*
(Illustrated by Norman Hall)
- (4) *Seashore Food*, London,
(Illustrated by Norman Hall)



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PLATE 75. VERNACULAR IN THE BIRMINGHAM DISTRICT

1. House at 11800 Avenue C, early nineteenth century
2. House at 11800 Avenue C, early nineteenth century
3. House at 11800 Avenue C, early nineteenth century

good ones, there was a tendency to look to London when architects were required for important buildings. The London architects were able to build up immense practices and handled an almost incredible amount of work. Even allowing for the fact that they worked extremely hard, it was practically impossible for them to give that personal and loving attention to design—especially to the design of details—which is necessary for good architecture. This, I think, emerges as the fourth important reason for the failure of Victorian architects. Their work stinks of midnight oil. It is the work of overdriven, tired men. (Even when they took holidays they worked at sketching with a sort of dogged insanity.) There was no time to think.

It is the sad fact that when the patronage of architecture passed out of the hands of people who cared about the arts (even if it was in a limited way) into those of men who did not understand them or personally care for them, but took it on trust that there was something important in the arts, the standard of design was not maintained. The reasons I have given above are some of the most important and there is no point in going further into this gloomy business here; but the question arises—what good was there in nineteenth-century architecture?

In the first place, there was what is called Regency architecture, Brighton Pavilion, the terraces of Regent's Park, Carlton House and Brighton—an elegant architecture which is really the continuation into the nineteenth century of the rococo. It is the architecture of the old aristocracy and its attendant middle class. Then there is the Grecian architecture of the first half of the century, mainly in churches and public buildings, and largely a product of the new wealth produced by industry. It is a sombre and dignified architecture but in some instances it has the quality of greatness. Perhaps the finest work of the whole century was St. George's Hall in Liverpool by H. L. Elmes (1815-47). The Gothic revival produced some fine buildings and many which have picturesque qualities, but I should hesitate to call any one a great work of architecture. This, I think, is because the Grecian style was based upon an understanding of Greek architecture, but the Gothic style was based upon a misunderstanding of the principles of medieval design. I am forced to the conclusion that the best Gothic buildings were the least scholarly, the rather crude but at least vigorous work of Sir Gilbert Scott and Alfred Waterhouse; but neither of these had the artistic integrity to create first-class architecture.

In a class by itself is the Palace of Westminster, a classical plan by Sir Charles Barry, tricked out with elaborate and quite lovely Gothic detail by A. W. N. Pugin. This strange combination, perhaps because it cut right across the sterile rival theories of the day, somehow perversely achieves qualities of greatness.

The art of architecture is a difficult one and the really gifted designer is a rarity even among architects. For all the building work of the Victorian age, there were simply not enough to go round, and most Victorian building is dreary, ill-conceived and inconvenient. Colour and texture were little thought about. Design is pretentious, vulgar and tainted with a sordid commercialism; but there are surprises everywhere; and there is some gold to be found among all this dross.

We must remember that Rickman excluded ordinary house-building as not being architecture. Certainly the homes of the working classes in the new industrial towns were not thought of as architecture. The idea would have seemed absurd. Neither were they vernacular architecture. They were just buildings, and so were some factories and warehouses. Throughout the century, working-class housing was improved. Dwellings became quite luxurious by eighteenth-century standards, but they were not designed as architecture—they were functional and that was all. They worked well by contemporary standards, but what a wilderness of dreariness they became! There could be no more moving testimony to the importance of design as a part of life than the miles of by-law housing in the big cities of Britain.

The true vernacular survived throughout the Victorian period and even developed in some localities, but it came under a baleful influence after 1851. The building tradesman began to go to night school, and there, from tired architects and assistants, he learned the "right way" to decorate things and all the crude tricks of the poorer kind of Victorian architecture—patterns of brickwork, pointed arches, "Gothic" detail, crude medieval mouldings on Renaissance panelling, bulbous debased cornices in plaster, and how to imitate the grain of Cuban mahogany with paint and varnish.

To the night schools went the wretched articulated pupils to learn in the evening, when they were tired, what their masters had undertaken to teach them. In Scotland they also went to school in the early morning before going to the office. Some good was done by these schools, but also an incalculable amount of harm. Much of the instruction was dull and dreary, some was incompetent. It was hardly education at all. It was a means of acquiring knowledge to pass examinations. Thousands upon thousands of earnest pupils sat in dreary classrooms and drank in alleged facts which the teachers had "mugged up," and a whole class of knowledge came into being which had no application outside the examination room. Such instruction as this inspired neither respect nor enthusiasm for architecture. It was supplemented by text-books and periodicals which were illustrated for the most part by new and crude processes of graphic reproduction, and written for the most part by people who were trying to turn an honest penny and had little or no idea of design, and often not much understanding of construction. Such architectural education as was available to the great majority of pupils was narrow and dreary in the extreme. Yet it was part of the Victorian sentimental creed to admire the boy who started lower than the articulated pupil as an office boy and by sheer hard work rose to be a successful and prosperous architect, quite regardless of the quality of the architecture he produced, what kind of man he had become in the process, or what other traits of character, what good fortune or timely helping hand, besides a propensity for work, had contributed to his success.

Nineteenth-century architects were not unaware of some of the shortcomings of the profession and architects, like other professional men, tried to establish standards of professional conduct and associated themselves for lectures and in other ways for the advancement of the



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PLATE 35. THE AMERICAN BUREAU OF SHIPPING, CHICAGO, 1877-9
(Built by John W. Sullivan)

art. Thus the British Institute of Architects was founded in 1834, and granted a charter by William IV in 1837—

for the general advancement of Civil Architecture and for promoting and facilitating the acquirement of the knowledge of the various Arts and Sciences connected therewith.

It became the Royal Institute of British Architects in 1866. It was through the institute that most of the much-needed reforms were carried out, and the profession which was at the beginning of the century disreputable and corrupt was raised in the public esteem. A fine library was collected and in lectures and the journal important contributions were made to knowledge of architecture and "the Arts and Sciences connected therewith." If the nineteenth-century architects in Britain had done nothing else, they would deserve to be remembered for creating this institute which, like its counterparts in other countries, still has great potentialities for improving the practice of the art of architecture, if it can avoid the danger of growing old, complacent and out of sympathy with its younger members, which threatens all such institutions.

Towards the end of the century there was a marked tendency to purify design and to revert to the classical styles. This was only putting the clock back by a century or so, but it brought about some improvement in the appearance of buildings. There was little general agreement about principles except that the classical style, which had been, as it was thought, in deadly combat with the Gothic style throughout the century, had at last won. There was a good case to be made for going back to Wren and the seventeenth century, and trying to make a new start from there. Palladianism had been too narrow, and free eclecticism too wide. Inigo Jones and Wren were seen as the great masters of the true English tradition, and their buildings were certainly admirable.

The revived classical style was adopted by the majority of prosperous architects in the first three decades of the twentieth century. The first phase of this revival is exemplified by some of the work of Norman Shaw (1831-1912) which is derived from Wren. In the first decade of the new century architecture became more grand and drew inspiration from the Baroque, and from the academic grand manner in planning which had been developed in France. Sir Aston Webb (1849-1930) and E. A. Rickards (1872-1920) are representative of this, the most swaggering period of English architecture. After the war of 1914-18 this *joie de vivre* vanished. Many of the younger architects had been killed and many of those who survived lacked experience. By the time they were ready to start in practice opportunities for them were not very good. The design of monumental architecture was more or less limited to a group of aging architects, most of whom practised a heavy classical style which was veering away from the English tradition towards that of ancient Rome. Public competitions which might have given a chance to develop a less sterile and pompous architecture were usually disappointing in their results, because assessors generally belonged to the powerful academic classical group. These men clung, desperately and not without bitterness, to the sinking wreck of the classical aesthetic, and, in loyalty to it, premiums were often awarded competitions to classical designs of the utmost crudity.

What in 1930 seemed to be the mainstream of architecture was far less important historically than the undercurrents of which there were many.

It is perhaps too early yet to write a history of what we call the modern movement. It is certainly too early to assess the relative importance of the forces which have made it. According to an old view of the nature of history, one reaches a point at which things become controversial and there the historian should stop. It was an easy creed which allowed one to leave the past unrelated to the present and it was the cause of much misunderstanding. We now know that all history is controversial and that the job of the historian is to interpret, as clearly and truthfully as he can, but not to lay down the law. An interpretation of history can be made only in terms of the values and beliefs which we hold. One cannot make an abstract interpretation of history in terms of nothing. One could assume that everyone knows "the modern point of view" but that is scarcely valid. So it is right, I think, to conclude this book with an explanation of the point of view from which it is written. It will be realized that my interpretation is different from that of Sir Reginald Blomfield or Sir Bannister Fletcher. They wrote at the end of a long tradition of architectural history-books and took for granted that their viewpoint was generally acceptable; that they were not, like the children in *Peter Pan*, putting their heads between their legs and looking backwards at the world upside down to frighten away the wolves. Their position is no longer tenable but mine cannot be taken for granted. I must state what it is if what I have written is to be understood.

PART VII: MODERN ARCHITECTURE

CHAPTER XV

THE ARCHITECTURAL REVOLUTION

ONE of the difficulties of writing about modern architecture is that the din of battle has not yet subsided—indeed, the issue is still not settled. It could still happen that what we call modern architecture could be arrested in its development so that it became a modern *style*, just one more style like all the others which the Renaissance spawned. Under political and social conditions analogous to those of ancient Egypt or the Byzantine Empire this style could become a tyranny and a bar to further progress.

The battle has been a real one and it has had to be fought to a great extent with ideas against actual buildings. The movement has had its martyrs, because most of the major architectural opportunities of the last half-century have gone to the old academic and eclectic school of designers. Inevitably, passions have been roused and the importance of small achievements has been exaggerated. Moreover, the support of some very dubious allies has been enlisted. Almost anyone who was against the old ways was accepted as being in sympathy with modern architecture, and the history of the movement was eagerly pushed back into the past so that men who were thinking in terms of machine-production for utility found themselves linked with William Morris (1834-96), an aesthete who hated machinery and loved rich patterns.

For a long time the modern movement was "underground," but it is now emerging as a strong and vigorous new architecture such as we have not seen since the Middle Ages (except possibly in the work of Wren). How much it may ultimately be seen to have accepted from the Renaissance I cannot pretend to know, but I suspect that it is very little. The essential quality of this new architecture is that it is organic and constantly changing according to the changing needs of society and the materials and methods of construction used. It is not a national architecture any more than Gothic was, but it is capable of developing in a characteristic way in every locality, as an expression of the character of the people who make it, the climate and the materials available. People who dislike it call it the "modern international style." It is certainly modern and international but it is *not a style*. If the word "style" is accepted the battle is lost. The essence of stylistic design is reverence for precedent. The essence of organic architecture is that it is capable of growth and mutation.

As we have seen in Part VI the challenge to stylistic design began to be heard early in the nineteenth century, if not before. It was based on the simple proposition that new methods of building should give rise to a new kind of architecture; but hardly anybody took this seriously. The Gothic revival was for the most part eclectic and

stylistic but it contained, especially in France, I think, an undercurrent of interest in structure. The movement was so much tied up with reproducing the appearance of medieval ecclesiastical architecture that this interest resulted in little more than the occasional substitution of iron for stone, without altering very much the structural forms invented for stone. The Gothic revival must be allowed some share of credit for the growth of interest in craftsmanship because it was soon realized that hand craftsmanship was an important factor in Gothic decoration. William Morris did a great deal to improve craftsmanship and he had a great influence upon decoration, but little direct influence upon the development of a new architecture. He did, however, contribute significantly to the growing disgust with the old elaborate stylistic architecture.

The classical revival has already been mentioned. It produced some fine classical buildings and developed the idea that architecture should be monumental and impressive. This was in line with the Renaissance aesthetic. It was a reflection of a way of thinking. It expressed in architecture the belief that established institutions, both administrative and commercial, should impress the public with grandeur and dignity. Like the architecture of ancient Rome such buildings symbolized the sense of power over people, rather than the ideal of service to people. To their very great credit the churches generally had little to do with this sort of design. The only thing the classical revival could contribute to modern architecture is the monumental, impressive idea, and whether this will be acceptable depends upon the way society develops.

It is a mistake in tracing the development of any art to limit inquiry to the field of art and art-criticism. A living art is part of society and artists are human beings who exist as such and not only in their capacity as artists. If we look around we can see many factors which profoundly influenced architecture about the end of the nineteenth century: humanitarianism; the growth of socialism; the work of Charles Darwin which led by analogy to the misleading critical concept of rise, consummation and decay in the arts. The work of scientists also set people thinking about man as an organism, and about his environment in relation to him as an organism. Patrick Geddes (1854-1932) developed some of the implications of this and contributed significantly to modern ideas about housing and town- and country-planning. Then there was the rise of a new school of painters, mainly in France. These artists broke away from conventional ideas about art and set people thinking and talking about art. Wagner in music had done the same. Controversy bred interest, and this interest in the arts affected architecture. After all, the classical concepts of music and architecture were very closely allied. To question one was to question the other.

One might make a very long list of the influences which affected the development of architecture between 1880 and 1914, and it would include many curious items. Important among them would have to be the invention of the bicycle and its corollary, the invention of bloomers. The old middle-class social habits, formal and stiff and inherited almost entirely from the eighteenth-century aristocracy, broke down rapidly.



PLATE 77. **BRITISH CHURCHES IN LONDON**

1. Interior View, Westminster
(London) (London and Oxford)
2. Exterior and Abbey Museum,
(London) (St. Paul's)



PLATE 36. AND NEWCASTLE

- a. College School of Arts, 1881.
(Builder: C. E. Ashcroft)
- b. Old Hall, Newcastle, 1891.
(Builder: James Cook)



Plant 76. San Narciso—Elery Garden, Oak Point, June 1, 1908
 (taken about 100 ft. up)

The bicycle helped in this. After all, cycling, especially in bad weather, does not lend itself to formality. The countryside was opened up to the townsman as never before, and later the invention of the motor-car extended the possible range in a given time. The younger people especially came out of their stuffy Victorian homes, out from behind the lace curtains and heavy pelments and venetian blinds, into the sunlight. The pompous seriousness of mid-Victorian life gave way to a new brightness and love of exercise and the open air. This is reflected in the development of sport. W. G. Grace (1848-1915), the cricketer, became a national hero. The Australian team first came in 1878. Lawn tennis was invented in 1874. International football started in 1872, and golf became popular when women were admitted to the main links after 1885.

Domestic architecture responded very quickly after 1900, its character changed completely and most Edwardian houses are fresh and bright with red tiles, a lot of white paint, french windows and verandas. The art of domestic gardening began to go ahead very fast. It was a new sort of gardening, informal and gay with flowers. Astonishing progress was made in breeding new varieties so that the modern garden would look like a miracle to a visitor from the eighteenth century.

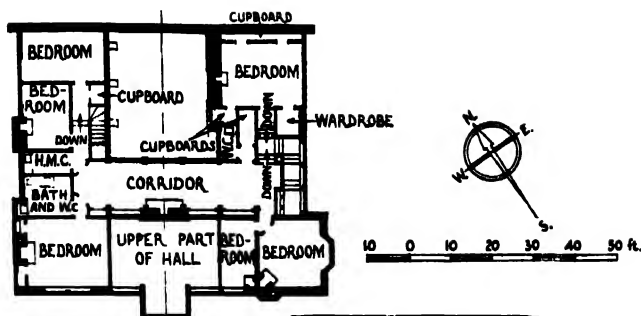
Closely linked with the liking for fresh air and country things was the growth of interest in the vernacular architecture of farms and villages. The charm of unpretentious Tudor buildings began to be appreciated as never before (even in Tudor times). Two things happened. Some people began to imitate the appearance of vernacular architecture in a stylistic way and to build, in "vernacular style," a farmhouse style, a Tudor style, a cottage style or simply in "Ye Olde English" style and, in Scotland, in the Old Scotch (*sic*) or Baronial style. Other people saw the true nature of the vernacular and tried to base their designs upon the same *principles* instead of imitating the appearance of the vernacular.

To distinguish between these is not always easy but it is a most important distinction. Much ridicule has been poured upon what is sometimes opprobriously called "Tudorbethan" architecture and it has been amusing, if not very kind, to make fun of "middle-class taste." In their enthusiasm for this sort of fun most critics have missed this very important distinction between the stylistic "olde-worldly" and the genuine vernacular. It is one thing to nail boards on to a wall to look like half-timber. It is quite another to build a house in the local materials in the traditional way (and it is as well to bear in mind that if there is a difference in principle between imitation half-timber and classical columns applied to a steel frame it is a fine one). If good local materials are sensibly used in building houses the result almost inevitably resembles the old buildings of the district. It is most important for the health of the modern movement that this should be recognized. Much good modern work is not recognizable *stylistically* as modern. There is no reason why organic architecture should be.

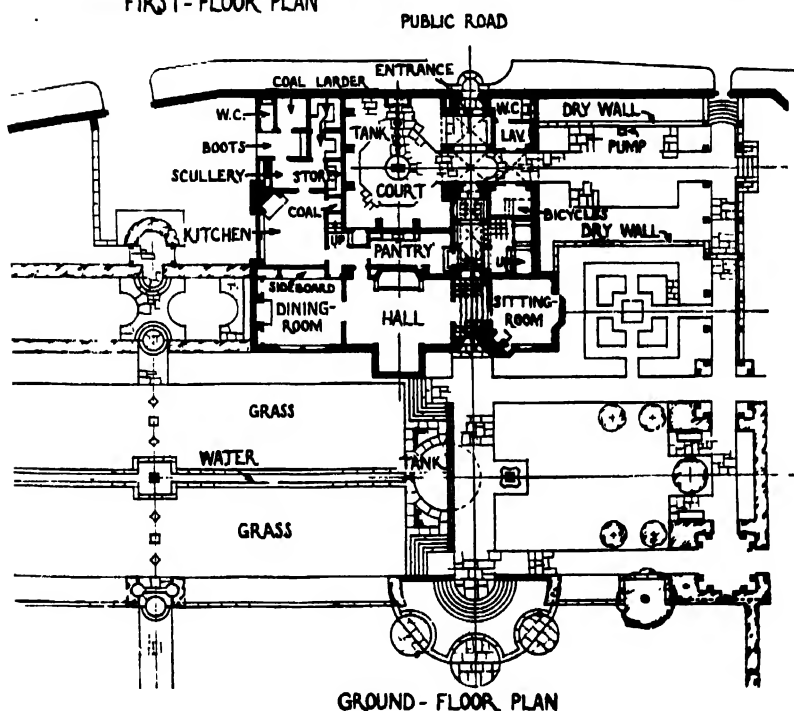
Good vernacular design survived the Victorian period (but only just). Towards the end of the century, as we have seen, interest in it revived, but the contemporary vernacular was ignored. The eclectics



Farm No. 1, Bureau Station, Bureau, Kentucky, Feb.
(Location in Illinois map)



FIRST-FLOOR PLAN



GROUND-FLOOR PLAN

PLATE 81. DEANERY GARDEN, SONNING

A new conception of the relation of a building to its environment—developed mainly from the English vernacular, at first strongly linked with classical ways of planning.

(From the *Lutyens Memorial Volumes* by courtesy of the Editor of "Country Life")

imitated Tudor vernacular, and the people who saw in the development of the vernacular a new and sane kind of architecture were inclined to reject resemblance to anything, and design from first principles with materials. In fact they were a bit self-conscious about it. Among the pioneers of this conscious use of the vernacular aesthetic in designed architecture, C. F. A. Voysey (1857-1941) is generally recognized, but a better designer who had no inhibitions and a far greater influence was Sir Edwin Lutyens (1869-1944). He has not been given due credit because he abandoned the vernacular in later life for the "high game" of monumental architecture and the seductive mystification of classical theories.

As a movement the conscious vernacular was side-tracked by the immense enthusiasm it aroused and obscured by the stylistic work of fashionable domestic architects, brewery companies and speculative builders. The great mass of traditional building which was undertaken in the first half of the twentieth century throughout Britain and North America and, to some extent, in other countries needs surveying with a cautious eye to separate the stylistic and pretentious from the genuine. There was a good deal that was genuine, and undoubtedly the taste for simple good materials and sensible non-stylistic design was greatly developed. This was important.

Throughout the nineteenth century, iron had been used as a structural material. After the invention, in 1856, by Sir Henry Bessemer (1813-98) of a process for making cheap steel, steel came increasingly into use and from c. 1881 experiments were made with steel frames for buildings. This happened mainly in the United States of America. Gradually a technique of computing the strength of steel and the stresses it would have to stand in structures began to be worked out. Then came a system of "fire-proofing" by encasing the steel in concrete, and this led naturally to a study of the structural value of the concrete and to the development of reinforced-concrete construction, of which the essential principle is that tensile stresses are resisted by the reinforcement and the concrete itself resists compression stresses, which it is well able to do.

In the past, constructional methods had been evolved by trial and error. So far as we know, Gothic construction was refined by using a little less material in each building until one fell down. Architects developed a *sense* of the strength of materials and *felt* the stresses in the structure. The new methods of calculation made it possible to design in an experimental way with new materials and without very great risk, though the technique of computation is still developing.

It is important to realize how structures are computed because there is some misunderstanding about the effect of such computations by the engineer upon design. Computation is a substitute for actual trial and error, not for imagination. A design is not built up by computation. It is imagined and then tested, not by building as in olden times, but by calculating its strength and the stresses in it. Imagination, therefore, becomes the essential prerequisite for progress in structural design. Imagination is aided by experience and knowledge of what has been done and proved possible. The progress of structural design depends upon architects and other people demanding what has *not* been



PLATE 10. MAIN BUILDINGS OF THE UNITED STATES

- a. New York
- b. Chicago

proved possible. The structural forms which we can now use are more various than in the past. For architecture two developments are of quite outstanding importance: firstly, the lintel has become by far the best way of spanning ordinary distances and the use of the arch has ceased to be necessary; secondly, walls can be carried on the structure instead of being part of it, and so buildings can be very much higher.

The development of framed construction and of a lintel which will span large distances completely altered the structural basis of traditional ideas about proportion. Early in this century the classical method of design was so firmly established that for a long time the structure was made to carry a façade of the old kind with the old orders and the old proportions. The most that classical architects would do was "adapt" the orders to the new structural techniques; but it was fairly generally realized that there was a serious conflict between the new methods and the academic conception of what a building should look like. It was emphasized by the development of the sky-scraper in America which made nonsense of classical scale and was hailed as a major victory for modern architecture until it was realized that closely-packed sky-scrapers create far more problems than they solve. There was, too, a tendency to see in sky-scrapers a new opportunity for monumentality—great masses of building, pylons more vast than Egypt ever dreamed of to be grouped in grand abstract composition, sculpture on an unprecedented scale and more or less regardless of the fact that the buildings were to be inhabited by thousands of people. Recently the sky-scraper has developed towards a much more truthful expression and closely resembles a honeycomb. Discussion now centres on the desirability or otherwise of honeycombs for human beings. They still have a strange fascination for architects who have monumental yearnings. Sky-scrapers are a direct result of the invention of lifts (c. 1860).

A powerful force in the development of modern design has been the desire to create better conditions for people to live in. The emphasis here has been upon physical health and material comfort rather than on the aesthetics of building, and there has been a tendency—which, paradoxically, seems to be very strong among people who resent social injustice—to repeat the mistake, made in the earlier part of the century, of believing that good design is a luxury. This belief has been supported by the functional theory of beauty that things well-designed for use will be beautiful. This theory is nonsensical¹ and has done a great deal of harm. It is a curious by-product of the Renaissance belief that beauty is a quality of things and that the object of art is to please. It has obscured the fact that art is a necessary part of healthy living.

In the nineteenth century there was not a little confusion between beauty and goodness. This derived from Plato's *Republic* as well as from the Old Testament, and it received considerable reinforcement at the end of the century in a book called *What is Art?* (1896) by Leo Tolstoy (1828–1910) who said that subjective and objective beauty really came to the same thing in the end and that the real

¹ I have explained why in *Art and the Nature of Architecture*, Pitman, London, 1952.

object of art is not the beautiful, i.e. that which pleases, but the good—

The destiny of art in our time is to transmit from the realm of reason to the realm of feeling the truth that well-being for men consists in being united together; and to set up in place of the existing reign of force that Kingdom of God, i.e. of love, which we all recognize to be the highest aim of human life.¹

Tolstoy felt that a "good and lofty work of art" could not be incomprehensible "to simple, unperverted peasant labourers (all that is highest is understood by them)."² The modern movement has been to some extent influenced by the Victorian aesthetic adapted into the form that good architecture is socially useful. I do not propose to go further into this. Its main result has been that modern architects have had a moral or social objection to extravagant architecture at least while the need for new building is as great as it is.

An exactly opposite view to Tolstoy's was expressed by Oscar Wilde (1856-1900)—

Those who find ugly meanings in beautiful things are corrupt without being charming. . . . They are the elect for whom beautiful things mean only Beauty. . . . We can forgive a man for making a useful thing as long as he does not admire it. The only excuse for making a useless thing is that one admires it intensely.³

These views, I think, give us a clue to one of the strangest phenomena in the history of architecture, the movement which is called *Art Nouveau*. It was an exotic movement. It was a creation of city life, of highly cultured people who made a cult of beauty. It appears to me to go beyond the range of genius into the realm of sheer insanity and so far as I can see it had no real beginning. It did not derive from any one man or any one theory (though it had roots in art for art's sake) and it came into being spontaneously in widely separated places. There are important examples in Spain, Belgium, and, in Britain, in London, Newcastle and Glasgow, to name a few at random. Much of the earlier work of Frank Lloyd Wright in America and in Japan is of this school. *Art Nouveau*, in reaction against Victorian ideas, is amoral and in architecture its special character is displayed in the use of shapes for their own inherent qualities. They are very strange, exciting shapes, often with a remarkably fluid or plastic quality, often refined to the point of exaggeration, sometimes heavy to the point of repulsiveness. The artists of this school had opened doors which civilized man had resolutely kept shut. Unless you see a hint of it in the French rococo you must go back beyond classical civilization, to the cult arts of very ancient peoples to find a European art emotionally akin to this. Even then you will not find quite the same thing. Nor will you find it in the art of central America before Columbus but you will find something rather like it. *Art Nouveau* is the extreme sophistication of the elemental.⁴

¹ Leo Tolstoy, *What is Art?* XV, Translated by A. Maude, 1905.

² Leo Tolstoy, *op. cit.*, X.

³ Oscar Wilde, *The Picture of Dorian Gray*, Preface, 1891.

⁴ I intend to deal with this more fully in a later volume.



Fig. 1



Fig. 2

PLATE 19. Modern Architecture in England

a. Festival Hall, London, 1951.
(architects: Berthold Lubowitsch and George F. Stevens)

b. Royal Festival Hall, London, 1951.
(architects: A. H. Munro and Percy Mordaunt)



Fig. 1



Fig. 2

Fig. 1. Apartment House at the East Coast Drive, Montreal, 1967.
Architect: J. M. M. M. M. M.

Art Nouveau architecture in the first decade of this century was by some standards crazy. It was constructionally unsound. It took very little notice of convenience or of function. It was often extremely elaborate and expensive and some, at least, of the architects who practised it were about as unreasonable as they could be. Its influence was profound. Even the staunchest academicians were affected by it and the gorgeous Edwardian Neo-Baroque had an *Art Nouveau* strain in it. For a decade decoration was very much influenced by it.

I think the reason why *Art Nouveau* was so influential in spite of its manifest faults was this. It was the final shattering of the classical ideal, the bursting through to the surface of something emotionally elemental after centuries of restraint; and this elemental thing was fascinating.

There are many kinds of architectural experience which you cannot get in a classical building. Ancient Egypt, China, India, Persia, Byzantium and, above all, medieval Europe produced buildings which had the power to move men, to make them catch their breath with wonder; and that is the magic, the amazing quality, of architecture. *Art Nouveau* brought it back suddenly. If we are to believe the psychologists, it is no wonder that after centuries of restraint this outburst had a quality of insanity.

Art Nouveau was a spark, a touch of a wand which brought modern architecture to life. It was gone in a few years but it had made an art out of architecture again. In the next forty years, tortured as they were with war and strange upheavals, the new architecture developed, no one clearly knowing what it was, but all the ideas and feelings gradually growing towards each other. The two strongest stems, I think, were: firstly, the vernacular—sensible, functional, the sober and sensitive use of good material including, naturally, the new materials and methods of construction; and, secondly, the emotional—the sense of wonder, the joy of expression, exploration, dangerous excitement, a striving for new relationships, new spacial qualities—the new structure handled expressively.

Who were the architects, the pioneers of this? I think a few names we might all agree upon, but I do not think it is yet time to be sure¹ or perhaps quite fair in a history-book to try to place men who are still living. Besides very few buildings have yet materialized which truly represent modern architecture. Two wars have played havoc with opportunity and favoured the elderly at the expense of the young. No one architect has made this new, exciting organic architecture. I doubt if any one architect can be said even to represent it. It is bigger than that and I think it has been made by many people in many countries. To believe it exists is still almost an act of faith.

It may be wondered how this architectural revolution came about in such troubled times and apparently with so little opportunity. There were no doubt many contributory reasons, but two, I think, deserve mention here. Firstly, there has been a growing interest in the

¹ I have suggested that Lutyens was a pioneer of the modern movement and became an enemy of it. I think the same may be true of some other architects who were important but for one reason or another have been incapable of growing up with the movement. Perhaps a man has to be very great indeed if he is to remain creative after he has become famous.



PLATE 16. BRIDGES BY RICHARD MULLART

- a Bridge over the Blaine at Tacoma, 1899. The span of the trestle is 1,200 ft.
(Mullart - Baker-Mullart)
- b Bridge over the Blaine at Tacoma, 1900-01. The span of the trestle is 1,200 ft.
(Mullart - Baker-Mullart)



PLANS BY MONTAGU DUNCAN

A programme which recognizes isolation and creates delight in structure, the Character of daylight form, and the "Kilometer" school for experiment.

1. *Montagu House, London, 1925.*
(London: *London and Town*)
2. *Montagu, Montagu, Pictorial, 1925.*
(London: *After 1925*)
3. *London House of the Montagu, 1925.*
(London: *Montagu, 1925*)
4. *London House of the Montagu, 1925.*
(London: *Montagu, 1925*)



FIGURE 16. The *Exposition Hall*, *Tientsin*, 1929.
(*Shanghai* - *For* *Exposition*)

emotional side of mental activity. This is revealed in the development of psychology and popular interest in it, as well as in a greatly increased interest in the arts, and especially in music. Many people have felt that there are limits to reason and beyond those limits there are knowledge and experience and values which can be reached only through the emotions, the imagination or the subconscious. People have learned to value art as an experience of reality; to value it as it has not been valued for a very long time in civilized societies. Some people see in this a sign of decay but I find myself in agreement with those who see in it the promise of a better way of life. The second reason is the change which has taken place in architectural education. Since 1900—especially in Britain and the United States—schools of architecture have been established which from the start have been independent of academies and preordained systems of design.

The schools began by adhering closely to the academic tradition, but the accidents of staffing and unrestricted conditions of work made them into places where much discussion and argument took place and enthusiasms were generated. Some of the schools were in universities and the young architect was brought into contact with intellectual life on a level which had previously been possible only in exceptional cases. It was a different world altogether from the work-a-day world of a busy office. Unless they were ruled by an actively reactionary head, and only a few were, the schools moved quickly away from classical design and pastiche, and students admired and imitated such architects as Mendelsohn and Corbusier. An immense amount of thought went into design of the new kind. Most of it was immature, hardly any of it got beyond the drawing-board, but it was sincere and important. The schools did nothing to initiate the modern movement, but they were the soil in which it was planted, the nursery in which it grew up. They have provided most of the new generation of modern architects and their assistants. The schools of architecture are important. In a single generation they have gone a long way towards altering the outlook and status of a whole profession, and they have begun to save architecture from intellectual isolation. They have great potentialities.

These, I think, were the two main reasons why a new architecture was able to come into being with very little building. The qualities of this new architecture are, I think, these. The medium of design is construction. The technique of design is the use of methods and materials in accordance with their nature. The ideal of design is to produce the best possible conditions for human beings in whatever activity the building is designed to house. The aesthetic is obscure and as yet not clearly understood, but in general architects are trying to use space as it is used in some Gothic, Byzantine and Islamic buildings, so that it is expressive in a way which they feel is important but do not fully understand. The old vernacular architecture is dying out, but the vernacular and the consciously designed have merged, so that this new organic architecture might be called a conscious or dynamic vernacular.

That is, I think, as far as we can go at present; but there is no reason why we should not try to see a little further.

We have seen that different philosophies have had important

effects upon architecture and it is worth asking if there is any philosophical development which is likely to affect architecture in the future. I think there is. The old idea that art is intended to create beauty was made untenable in the eighteenth century. The idea that art was intended to arouse a sensation of beauty was disliked in the nineteenth century because beauty was seen to be simply that which caused pleasure, and so beauty had to be made respectable by linking it with goodness. This finished the rococo. The next important step was the realization that it is not the purpose of art to cause pleasure, and that whether we enjoy or like things or not has nothing to do with the case. Art is seen to be a language, a way of saying things which cannot be said except through art. Several philosophers and many artists have thought along these lines but the best and clearest development of this theory is in *The Principles of Art* by R. G. Collingwood. He argues that the purpose or nature of art is to serve as a language by which the emotions are expressed. Art, he says, is an imaginative activity whereby we express our emotions. Thus art becomes a means of communication. Our emotional life, we now know, is a very important part of our being and the health of that side of our minds is closely linked with art as a means of expression and communication. There are vital aspects of experience which are communicable only in terms of art. I have suggested elsewhere¹ that this aesthetic has an important bearing upon architecture, and I will not carry the argument further here. It seems to offer at least a partial explanation of the obscure emotional component of modern architecture. To get very much further I think we shall have to wait until we know more about imagination, the mental creative power and the emotional nature of man. If it does happen that Collingwood's aesthetic influences architecture, it will be in the direction of making design more expressive, more subtle and more sensitive. It will completely inhibit the return of an architecture which is intended to impress or otherwise to *arouse* emotion, because *arousing* emotion is not art and *expressing* emotion is.

I feel myself that Collingwood is right as far as he goes and he goes a long way; but, in this art of using structure in space, there is something which we can recognize and understand emotionally within ourselves but which we cannot yet explain. That is not a cause for regret. It would be most dreary to feel that we have nothing more to learn.

¹ See my *Art and the Nature of Architecture*, Pitman, London, 1952.

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